

After Gaining the Confidence of Prospects, Salesman Must Make Them Dissatisfied With Present Products & Sell New Needs

"The Sales Story," Volume 2 (Concluded) of "The Knack of Selling More" (3 Volumes). Author: Burton Bigelow. Publisher: McGraw-Hill Book Co., Inc., New York City. Pages: 145. Price \$1.50 (Set, \$4). Review by T. T. Quinn.

Suppose our salesman gains the confidence of the prospect, and gets his story believed. Even then, his work is only beginning.

A large percentage of his prospects are satisfied without his product. They are content with their present ice box, their old vacuum cleaner, their coal-fired furnace, the amount of their life insurance.

One of the salesman's chief tasks, therefore, is to blast prospects out of their buying and brand habits, and dynamite them out of their contentment and satisfaction, dissatisfy them with their present situation, develop their latent and undeveloped wants.

This cannot be done by showing the merits of the product or the advantages of the offer only—such a presentation leaves the prospect uninterested, still in the grip of his own inertia. This can be secured best by the use of minus points; by showing these contented prospects the losses they are suffering, and the discomforts, inconveniences, and lacks they are risking by not taking the action the salesman suggests.

These tactics the author includes in a chapter called "Empty the Prospect's Bucket of Present Satisfaction." Having emptied the prospect's bucket, however, it is up to the salesman to refill the bucket—this time with desire for the new product—the product which the salesman offers.

For the bucket-emptying process has accomplished only one result: it has torn the prospect loose from her old habit, wrenched her away from her old state of satisfaction, and caused her to be dissatisfied with her present situation.

In selling refrigerators, for example, the "bucket-emptying" process decides Mrs. Prospect that she is going to move out of Iceboxville but it doesn't cause her definitely to decide whether she is going to Frigidaire-ville, Kelvinator-town, Grunow-burg, G-E-ville, or Electrolux-city.

This job must be done with plus points, to show her the safety, comfort, long life, good health, convenience, peace-of-mind which a Kelvinator (let's say) will bring to her. What point will make an appeal to Mrs. Prospect's desire for certain satisfaction? What point will arouse her feeling of pride, including pride of being a good housekeeper, pride in her family, home, and children, pride in being up-to-date? What point will also appeal to her desire for increased approval from others? She anticipates that her friends will think well of her for buying a new, modern, electric refrigerator. And, finally, what point will appeal to her desire to imitate her friends and keep up with the Joneses?

The salesman can use plus points this way. He can say: "A modern electric refrigerator will keep your vegetables fresh 'til you use them." This, says the author, is applying the plus-point to the general type product the salesman is selling.

Or, the salesman can say: "The Blank refrigerator will keep your vegetables fresh until you use them." In this case, the salesman is applying the plus point to his individual brand of refrigerator.

"Make your sales canvass right side up," the author says. "First empty the bucket by the use of pain-and-loss appeal. Then, fill it with pleasure-and-gain appeal. Clinch the prospect's newly aroused desires with your good quality and good service story, and confirm your promises by a point-by-point product demonstration.

Selling isn't a mystery, the author says, if you consider these well-accepted facts:

1. The prospect isn't interested in the product of however good quality, but in a result.
2. The prospect wants that result vividly related to his or her own pleasure and gain.
3. He or she isn't interested even in the product result or its promised pleasure and gain as long as he or she is satisfied with what he or she has now.

In making the demonstration, the author says, salesmen should start with the prospect's needs and wants, and move toward the product's performance. Avoid starting each sentence with a statement of what the product will do or is doing. Begin, rather, with a reference to one of the prospect's major wants. Take your points from thoughts out of the prospect's mind, the author advises, and tie them up to your product-points.

Appeal to all five senses, not only the sight and hearing. There are five

doors to consciousness, five channels through which you can reach the mind of your prospect and leave an impression. Use all of them, the author advises.

Get the prospect to take an active part in the demonstration. We all know certain things, the author says, but we don't believe them. We believe certain other things, but we have never experienced them. Until knowledge takes the form of personal experience, it is the author's opinion that it is a vague bit of theory. You can't explain to anyone what it feels like to drive an automobile, he says, or to take your own movies, or to operate a duplicator. To really understand these things, the prospect must do it with his own hands.

An automatic refrigerator salesman insists that his prospect operate the trick door opener with which his particular brand of refrigerator is equipped. He has two dishes handy; places one in each of the woman's hands and tells her to open the door. Having watched him do it a half-

dozen times, she laughingly attempts and finds to her surprise and gratification that she can do it easily.

"Do you believe that any word-picture which that man could paint would equal the woman's personal experience in opening the door with both hands full?" the author asks.

This salesman also insists that prospects remove and reinsert the movable shelves, that they feel the rounded corners of the porcelain lining, and that they operate the cold control with their own finger and thumb. He has found that for real sales power, there is no substitute for the prospect's active participation in the sale.

Another important point in the demonstration, the author says, is to use picture-phrases in getting across your point.

The salesman for an air-conditioning outfit which filters the dirt and dust out of the household air uses this phrase to describe the air's cleanliness:

"You have washed air as clean as a white tie!"

"Isn't that a picture?" the author asks.

Now we are getting toward the end of our sales story, and the salesman comes to another tough hurdle—how to get across his sales point without getting into an argument with the

prospect.

The best way to do this, the author says, is by a flank attack aimed at the prospect's self-interest, with the object of inducing the prospect to lower his defenses altogether and listen open-mindedly to what the salesman has to say.

For the purpose of making this indirect or flank attack, the author says, one of the best tools in the kit is "the other man's way." This can be compared to a shot on a billiard table. The salesman holds the cue and has control of the cue ball. The pocket is the prospect's mind. The ball the salesman is endeavoring to put in the pocket is his sales point. The cushion against which the salesman bounces the ball, or sales point, is the other fellow's experience.

Aim accurately, the author says, put the right English on the ball and you will score without appearing to aim at the prospect at all. Since you do not appear to aim directly at your prospect, it follows that your prospect is not conscious of the fact that he is being sold; he forgets to be on the defense. He lets down the rock curtain, and selling becomes pleasant and easy by comparison. Observe this method in action in selling your refrigerator. Here is how it would go:

"A lady over on Ontario St.—perhaps you know her, her name is Mrs.

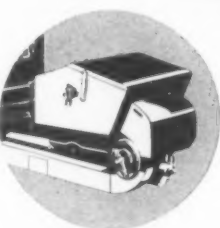
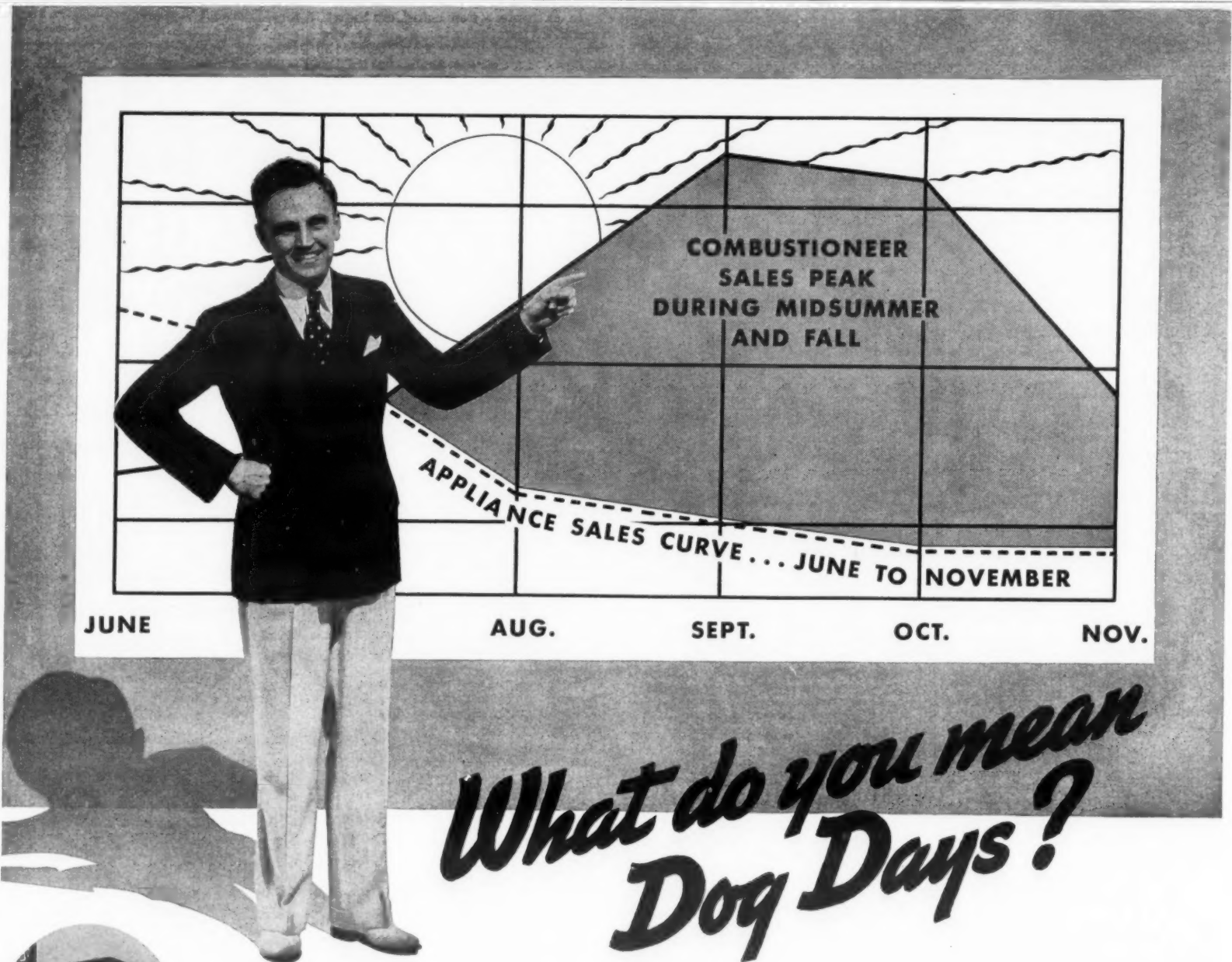
Brown—noticed that her children were having a lot of digestive trouble, but she never thought of it as being due to food spoilage until she took out her old-fashioned ice box and replaced it with a modern Blank refrigerator. She noticed in a few days that her children's stomach trouble disappeared. She made up her mind that spoiled food had really been the cause of it."

How much more effective this is than the clumsy approach:

"Your children are sick probably because they are being fed spoiled food out of your old-fashioned ice box."

In the last case, the salesman would be in an argument with the customer, which is always bad selling. In the first case, he told her the same thing, but he did it by means of "the other man's way."

This strategy is not limited to any one part of a sale, the author says. It can be used in the approach, in "emptying the bucket," in "refilling the bucket," in handling objections, or in making the close. If you find yourself unable to present the powerful points you know you should present, or if you notice that certain of your remarks cause offense or build up antagonism, try rephrasing these portions of your sales representation in terms of "the other man's way."



Just because you are selling major appliances there's no law which forces you to let summer dog days devour the profits which recent sales peaks have piled up. Not while Combustioneer's sales calendar rates midsummer and fall as the top season for the greatest volume and profits which an automatic heating product has ever known. Today it's squarely up to you to decide whether or not July the 4th will mark the birth of your freedom from seasonal slumps and put you on a twelve month profit year. Combustioneer is ready to prove with a mass of evidence that this franchise will show *double-the-profits-per-volume* of any product you've ever sold, besides boosting your volume during summer and fall when you need it most. That's our story, we'll stick to it, and how—and it's yours to hear if you will stick a three-cent stamp on the nearest envelope pronto. Write Combustioneer, Division of The Steel Products Engineering Co., Springfield, Ohio.

Combustioneer

AUTOMATIC COAL BURNER

Combustioneer, Springfield, Ohio. I want the facts about your franchise.

Name _____

Address _____

REFRIGERATION NEWS

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Value of Kitchen Modernization Program to Utilities Explained; Local Bureaus Being Formed

Whitwell Tells Power Men Kitchen Program Will Increase Load

ST. LOUIS—The selling of more kilowatt hours, with their attendant reduced unit prices, remains the utilities' best single defense against attack—and the field of kitchen modernization offers the greatest opportunity for advances in this direction, George E. Whitwell, vice president of Philadelphia Electric Co., declared in an address before members of Edison Electric Institute here last week.

"Our industry has never subscribed to the economic doctrine of scarcity," Mr. Whitwell said. "Every important move that it has made demonstrates the truth of this statement."

"On the contrary, the constantly decreasing unit cost of electric service has resulted from successful efforts along the lines of load building—a form of wealth creation. This example of cause and effect has pro-

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Non-Recourse after 3 Months Features Bank Finance Plan

NEW YORK CITY—National City Bank's plan for financing retailers' sales of major appliances in the New York metropolitan area became effective June 5, giving approximately 500 retailers, including several department stores, a finance method which goes on a non-recourse basis after the first three monthly payments have been made.

The plan was sponsored by the industry program committee of the Electrical Association of New York, Inc., in cooperation with the Consolidated Edison System and distributors of appliances in the New York area.

Other terms of the plan include: a minimum monthly payment of \$3; maximum terms of three years; down payment of 5%, but not less than \$5 per contract; a financing charge of 5% on the unpaid balance, making a yearly average of approximately .048% for 24 months, and approximately .047% per year for 36 months.

Retailers, to be eligible to the plan, must be approved members of associations sponsored by Consolidated Edison Co., Inc., New York and Queens Electric Light & Power Co., and the Bronx Gas & Electric Co.

The National City Bank is authorized by the plan to deduct 2% from the proceeds of each contract to be credited in the dealer's name against

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Atwater Made Chairman Of Conditioning Bureau In San Antonio

SAN DIEGO, Tex.—New officers of the San Antonio Air Conditioning Bureau were selected at a recent meeting of that organization here.

Frank G. Atwater, newly appointed manager of the Southern Equipment Co., was elected chairman, and A. J. Rummel, industrial engineer of the commercial department of San Antonio Public Service Co., secretary.

Mr. Atwater recently moved to San Antonio from Houston where he has been identified with the refrigeration and air-conditioning industries since 1926.

The bureau, formed of the leading manufacturers, distributors, and dealers of air-conditioning equipment, and of the San Antonio Public Service Co., was organized last year "to promote sound standards in the application of air conditioning in homes and buildings, to establish ethical business practices, and to maintain the professional standing of the science of air conditioning through a cooperative educational publicity campaign."

A need for such an organization was felt chiefly because of the great diversity in equipment and method of installations, the members say.

Planning Services and Model Kitchens Are Set Up

NEW YORK CITY—Kitchen planning services and model all-electric kitchens for display purposes are being set up in a high percentage of the major cities of the country as the program of the National Kitchen Modernizing Bureau has been taken up by local utilities and dealer associations.

Reports of five field representatives of the National Kitchen Modernizing Bureau from the localities which they have recently visited show a wide variety of promotion plans among the local bureaus.

Dr. G. W. Allison, H. L. Martin, and Bernard Weadock, Jr. have been conducting the field work, assisted by

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Utility Speakers Hit Federal Regulations

ST. LOUIS—Two speakers at Edison Electric Institute sessions last week criticized rather sharply the inclination of the present national administration toward rigid regulation of public utilities—and gave no credit to the government for recently improved conditions.

"The federal government has not stopped with taking over regulatory functions properly belonging to the states," said Harper Sibley, president of the Chamber of Commerce of the United States. "It has in some instances attempted to go far beyond this point by displacing private initiative and management. This is repugnant to traditional American practice and principle. I am confident time will prove it is detrimental to the public whose interests it is intended to promote."

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San Diego Refrigerator Sales Ahead of 1935

SAN DIEGO—Refrigeration sales in San Diego county for the first four months of this year were 50% ahead of the same period of 1935, J. Clark Chamberlain, secretary-manager of the Bureau of Radio and Electrical Appliances of San Diego county, reports.

Mr. Chamberlain says he believes the sales will greatly exceed the 7,000 domestic sales made in that county last year.

Place of Utilities in Marketing Air-Conditioning Systems Is Outlined by Edison Institute Speakers

ST. LOUIS—The importance which public utility companies attach to air conditioning both as a present and a potential load-builder was brought out in discussion here last week.

Air conditioning has passed out of the experimental stage, and has now become one of standardized practical equipment, where tested practices and experiences are available, C. E. Michel, vice president of Union Electric Light & Power Co., St. Louis, told delegates in his "Review of the Utility's Position in the Air-Conditioning Field."

Terming air conditioning "a new service to humanity," Mr. Michel said "it has emerged from the custom-built to the ready-made stage."

"In the beginning," he said, "it was a part of the building industry. Each job was designed for a specific purpose, and the equipment for each was assembled on the ground. Then, as applications were made to comparable structures, standardization became practical—and today even the larger installations are made up of standard factory-built units."

The present status of unit air conditioners, their importance as load-building equipment, and their relationship to the future of the air-conditioning industry was discussed by R. H. Tillman, new business manager of Consolidated Gas, Electric Light & Power Co. of Baltimore.

Standard RMA & ACMA Warranty Made Public

WASHINGTON, D. C.—The standard warranty forms adopted by the Air Conditioning Manufacturers Association, and the Refrigerating Machinery Association at their recent meetings at Hot Springs, Va., were made public last week by William B. Henderson, executive vice president of both associations.

The standard form of warranty adopted by the air-conditioning manufacturers reads as follows:

"Seller shall repair or replace, at its option, free of charge, f.o.b. the place of manufacture, any part of the within equipment manufactured by it that is claimed to be defective in workmanship or material, within one (1) year from date of shipment and, upon inspection, is proved to the satisfaction of Seller to have been defective at the time of shipment provided that Buyer promptly gives Seller notice and full information in writing about the defects and delivers the part f.o.b. Seller's factory for inspection, when requested."

"Equipment manufactured or supplied by others, but furnished by Seller under this order, carries the

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Broadcasting Booths at Political Conventions Cooled by Frigidaire

DAYTON—Delegates and spectators at the Republican national convention in Cleveland and the Democratic national convention in Philadelphia may do a little sweating over certain problems of politics, but the fast talking gentlemen of the radio networks literally will be as cool as cucumbers throughout the proceedings.

In the control and studio booths of both the National Broadcasting Co. and the Columbia Broadcasting System at both conventions will be small Delco-Frigidaire air-conditioning units that will hold temperatures and relative humidities down to the point where the announcers and commentators can put every ounce of punch into their work without human discomfort.

Pressure of hour after hour broadcasting at major events drains the energy of the announcers and engineers involved, it was pointed out. In addition, the fact that broadcasting must be done from sound-proof booths complicates the problem of ventilation.

Delco-Frigidaire engineers have worked out an installation plan with NBC and CBS engineers so that the staffs will suffer no ill effects whatever the atmosphere outside or within the auditoriums may be.

27,299 Commercial Unit Sales In April Top All-Time Record

Domestic Specification Issue Sold Out; To Be Reprinted July 1

The entire stock of the 22,500 copies of the April 22 issue, in which were published specifications of 1936 models of household electric refrigerators, has been sold out.

Household refrigerator specifications, with corrections and additions, will be reprinted in the July 1 issue of the News to meet the demand for this information.

Those who want extra copies of the July 1 issue should send in their orders early, to insure prompt delivery. Price will be 25 cents per copy, irrespective of quantity.

Appliance Advertising Attacked by Chicago Better Business Bureau

CHICAGO—Tricky layouts, "bait," and flagrant misrepresentations in electrical appliance advertising were found by Chicago Better Business Bureau in an analysis of complaints by the public, advertising media, and distributors and manufacturers. The report was made public June 4.

The inaccuracies, all violations of the Standards of Practice for Appliance and Radio Advertising as adopted in April, can be classified in the following five groups, according to Bureau members:

(1) Emphasis (in advertising) on the names of nationally known products which are actually offered at prices three or four times advertised quotations.

(2) Use of illustrations of appliances not representative of models actually available at featured prices. For example, illustration of a "de luxe" model in connection with a price which really refers to a small size "standard" model, or illustration of 1936 models when those offered are floor samples or used merchandise which is several years old.

(3) Failure to state actual conditions of articles, as "used," "new," "reconditioned" etc.

(4) The use of well-known trade marks or names to create the impression that merchandise illustrated or offered for sale is of such brand, when this is not the case.

(5) Improper use of comparative prices.

Among the companies who according to the Better Business Bureau were alleged to have used misleading refrigerator advertising, was the Sun-

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Self-Contained Ice Cream Cabinet Sales Show Greatest Gain

DETROIT—Fifteen manufacturers of commercial refrigerating machines sold 27,299 units to distributing outlets in April, the greatest volume of commercial machine sales ever reported for one month, according to figures compiled by the Commercial Refrigeration Division of the National Electrical Manufacturers Association.

The April sales volume surpassed by nearly 3,000 units the record established in May, 1930. However, a smaller number of companies were reporting sales at that time.

In the special classes of commercial equipment the most notable gain was made in self-contained ice cream cabinets, where the 4,336 units sold were nearly twice the number sold in April.

Sales of self-contained bottled beverage coolers, which have been setting a hot pace all Spring, held up in April, with 4,609 units being reported sold to distributing outlets.

Both self-contained and remote-type floor conditioners showed increases over April, but totals on air-conditioning equipment have not attained impressive levels thus far this year.

A detailed tabulation of commercial refrigeration sales reported by Nema members will be found on page 15 of this issue.

Distributors to Sell Frigidaire Parts To Service Men

DAYTON—Formal announcement was made last week by Virgil A. Hetzel, installation and service manager of Frigidaire Corp., that independent refrigeration service operators may now obtain Frigidaire manufactured replacement parts.

Frigidaire Corp. will actively merchandise replacement parts through its refrigerator distributing organization to refrigeration service men, Mr. Hetzel said.

In making his announcement Mr. Hetzel declared that "we have decided to make parts available to those who adhere to the Frigidaire organization's standards of service and who have been trained in the servicing of Frigidaire parts." Just how this statement may qualify sales of Frigidaire parts to independent service men is not known.

It was also stated in the announcement that "this new development will in no way affect our present dealer service organization, but will augment Frigidaire service to the extent that users who wish to patronize service dealers who have served them in the past now will be able to have genuine parts used in their units."

167,782 Units Sold by Norge in 5 Months

DETROIT—May sales of Norge refrigerators increased 30.7% over the corresponding month of 1935, making the Norge volume of household electric refrigerators reach the total of 167,782 units for the five month period of 1936, a gain of 38.7% compared with last year, reports Howard E. Blood, president of Norge division of Borg-Warner Corp.

All-time monthly highs were also reached in the sale of beverage coolers, and commercial refrigeration units, Mr. Blood says.

Sales increases for other Norge appliances for the five month period, compared with 1935, were: washers, 142.4%; ironers, 858.3%; gas ranges, 327.4%; electric ranges, 83.7; oil burners, 236.5%, according to the Norge president.

Total sales for all Borg-Warner household appliance divisions, said Mr. Blood, were 253,217 units for the five month period, a sales increase of 57% over the corresponding period of 1935.

Norge has also remodeled and enlarged its sales, engineering, and production offices, Mr. Blood states.

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Sibley & McCarter Hit Government Attitude On Power Industry

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"Today the electric power industry is the guinea pig for the hazardous experiment of resorting to public ownership to test the efficiency of private ownership. Other types of industries cannot ignore the implication of this experiment. If the entrance of the government into the field of producing and distributing electric power could be justified in principle, it would require no stretch of conscience to project it into other fields of business. For this reason, what happens to you is of momentous concern to all business."

Thomas N. McCarter, president of the Institute, struck a more optimistic note by expressing the opinion that the peak of "government attacks" on the electric power industry has passed. "I may be over-optimistic," Mr. McCarter said, "but I think that the peak of this fight has passed. There never was any real basis for it except a few isolated cases of the mishandling of securities by certain manipulators and promoters, the wrong-doing of whom is in no sense chargeable to the industry as a whole. The issue was politically manufactured."

The growth of the industry during the past year has been phenomenal, under the conditions that have existed, said Mr. McCarter.

He declared that it is impossible "to conceive of a more inexcusable and wasteful expenditure of a vast sum of public funds than is contemplated to be spent for the purposes of the TVA yardstick in this sparsely settled and largely undeveloped territory, unless the proposed Passamaquoddy project is considered to go it one better in useless extravagance."



Make a "CLEAN-UP" with Permutit

• There's a new convenience women want—water conditioning. They want it the way they wanted oil burners and electric refrigerators when they first came into prominence. The dealers who get exclusive distribution privileges now for Permutit sales will clean-up with this new money-maker!

• The reasons why America wants water conditioning are simple but powerful. Water conditioning is an aid to beauty, health and cleanliness—a time saver, a labor saver, and a money saver! You can prove these points right in the prospect's home by using a handsome, light-weight, chromium-plated demonstrator.

• Permutit sales don't slump in the Summer like oil burners, or in the Winter like refrigerators. They are good the year 'round. Also, sales can still be financed under FHA terms with no down payments.

DISTRIBUTORS—There's still time to apply for an exclusive territory. We give you 100% cooperation toward getting dealers and making sales. You'll get helpful local advertising, forceful national campaigns, and free sales training courses. Still skeptical? Write for names of well-known distributors who are cleaning up right now with Permutit!

THE PERMUTIT COMPANY
Room 723, 330 W. 42nd St., New York City

Please send me, without obligation, complete details of your merchandising plan and money-making proposition.

Company _____
Address _____ City _____

Signed by _____

Bank Finance Plan Made Available to New York Dealers

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losses incurred after the first three instalments have been made.

Unused portions of the reserve, the plan specifies, are to be credited to the dealer after the stipulated period. On any contract in which any of the first three instalments have not been paid, the dealer is required to repurchase the contract.

The limited recourse is made possible because the utility companies have provided the bank with an underwriting guarantee, the report says.

Among the eligibility requirements is the provision that an approved dealer must have effected with a distributor or other organization an arrangement for reconditioning repossessed appliances. This is to assure the bank of the dealer's ability to pay on defaulted contracts during the three months' recourse period.

Only appliances of standard make, which have been approved by the utility companies are eligible under the plan. Electric appliances eligible include: refrigerators, water heaters, ranges, water coolers, laundry dryers, and washing machines.

Atwater Kent to Promote Radios Less Actively

PHILADELPHIA — A statement issued last week for the Atwater Kent Mfg. Co. to the effect that the company "will less actively promote its radio line" is thought to indicate a gradual withdrawal of the Philadelphia manufacturing concern from the radio field.

The statement said: "The Atwater Kent Mfg. Co. has decided less actively to promote its radio line and has so informed its distributors. It is believed that less than 100 employees will be affected by this decision at this time. It is not in a position at this time to state what new lines of activities it has planned for the future."

The Atwater Kent company, originally a producer of automotive ignition equipment, began making radio sets in 1923.

Two years ago the company introduced a line of household electric refrigerators, but discontinued their sale and distribution last year.

'Teledial' Tuning and New Cabinet Design Mark Grunow Radios

CHICAGO—Instant "Teledial" tuning, a device which is said to enable any one to dial 15 stations in less than 15 seconds, and a new cabinet design to prevent distortion due to cabinet resonance, are two of the new features of the 36 models in the 1937 line of Grunow radios introduced to 350 distributors who met at the Blackstone hotel here last week.

Six of the 36 models are designed for farm, camp, or boat use, and will sell for prices upward from \$17.95; two-thirds of the models, however, are larger sets of the console type. George Walker, Detroit industrial designer, developed the cabinet styles.

All of the new sets have large airplane-type dials and although an "electric eye" has been put on the seven, eight, and nine tube receivers, the "clock-type" tuning continues to be a feature of most of the Grunow models. Triple speakers, two 6 in. and one 12 in., are used in the higher priced models, and 8, 10, and 12-inch speaker equipment in the balance of the line.

Chassis specifications include automatic antenna tuning, three and five position tone control, automatic volume control, dual audio channel, full floating condenser gang and chassis, mechanical band spread and dual ratio Vernier drive. The frequency range varies according to the model, although in the majority of cases, a range of 550 kc. to 18,000 kc. is specified. Nearly all receivers use metal tubes.

This year Grunow will also market three models of auto radios, H. J. Shurtle, general sales manager, announced. During the last three years, the company has manufactured over a quarter of a million automobile radios for one motor car builder, Mr. Shurtle said. The three models will be priced at \$49.95, \$59.95, and \$64.95, and will include a choice of three speaker combinations.

Advertising plans for the coming year, as outlined by Tod Reed, advertising manager, and members of the company's agency, Ruthrauff & Ryan, include outdoor posters, some radio spot broadcasting, and advertising in newspapers, rotogravures, and national magazines. He estimated that approximately \$250,000 will be spent to reach consumers this fall.

Used Refrigerator Advertising in Chicago Termed Misleading by Business Bureau

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beam Appliance Co., which made a false use of illustrations when it advertised "Brand New 6 1/2 Cu. Ft. Refrigerator, \$79.50," and also, "New Floor Models—Electrolux, Crosley, Westinghouse—\$69" adjacent to an unnamed machine. Investigation later disclosed that the refrigerator illustrated was not available at either price.

In a similar case, the refrigerator used to illustrate an advertisement carried by Roy Bauman, 4004 Irving Park Blvd., in which he offered a "Used Electrolux—\$69.50" did not resemble the Electrolux for sale, according to bureau members.

A check on classified advertising revealed that Sunbeam Appliance, advertised "Used and New Refrigerators, \$34.50," and actually had on sale only one used box at that price.

Similarly, in listing "Crosley, Copeland, Stewart-Warner, Zerozone, Majestic, Kelvinator, and Wayne Refrigerators at \$48," this company did not specify that they were all used models.

Another branch of the same company, at 712 Jackson Blvd., advertised "Brand New Crosley—\$59.50; Electrolux, \$69.50" whereas investigation disclosed that these boxes were 1935 and 1934 models and they had been used as floor samples and demonstrators.

Among the other violators of the agreement was P & K Refrigerator Sales Organization, 3023 Irving Park Blvd., which advertised "Servel, Frigidaire, and Copeland Refrigerators, \$25 and Up" when only Servel models were available at \$25.

"General Electric, Frigidaires, Kelvinators, Rebuilt & Guaranteed, \$45 and Up" was the advertisement run by Garfield Appliance Sales & Service Co., 5531 S. Halsted St. No General Electric were priced at \$45, the Bureau shoppers found.

Bureau investigators also found for the price specified at Edison's Warehouse Outlet, 776 W. Jackson Blvd., when that company advertised "General Electric, Frigidaire, Westinghouse, Norge, Crosley, Gibson, as low as \$45."

Bureau investigators also found in answering an advertisement which read, "Rebuilt and Refinished Guaranteed Norges, Kelvinators, and Other Makes, \$32.50 Up" inserted in the classified section by Andrewson's, 4342 Fullerton Ave., that only a Norge was priced at \$32.50, and that that was neither rebuilt nor guaranteed.

Automatic Air Conditioning Co., 3259 W. North Ave., inserted this "bait" in the classified section: "Crosley Shelvador, Brand New Model, \$59." Customers who asked for the bargain found that \$59 was the "cash and carry" price and that the company charged from \$18 to \$20 for installation and delivery.

Mid City Furniture Co., 5831 S. State St., failed to specify that the refrigerators it offered in the advertisement, "Frigidaires, \$59; Kelvinator, \$69.50; Electrolux, \$79.50; Crosley, \$79.50" were floor samples.

The refrigerators advertised by

Premier Refrigerator Sales Service Co., 502 N. Clark St., at \$22.50 were used boxes, although the copy did not say that.

Patterson Bros., 1952 Irving Park Blvd., advertised "Frigidaire, \$55; Kelvinator, \$45—Others \$30." Bureau shoppers found that these were used machines.

"Repossessed Electric Refrigerators, \$17.50" was the leader offered by the Macklam Refrigerator Sales & Service Co., 22 W. Huron St., in the advertisement, but the refrigerators were several years old and not repossessed merchandise. They should have been described as "used," bureau members said.

Boxes that were actually repossessed were advertised by Logan Appliance Co., 2751 Milwaukee Ave. simply as "Kelvinators, \$39; Frigidaires, \$54; Norge, \$59."

City Radio Stores, 6403 S. Halsted St., and Berg Home Utilities Co., 6835 S. Halsted St. failed to specify the refrigerators they advertised were "used goods."

The classified run by the former read, "Frigidaire, \$39—Kelvinators, Norge, guaranteed, Copeland, \$39"; by the latter, "\$59 Frigidaire; General Electric, \$69."

Similar violations by some of the companies mentioned and many others were reported in listing washers, radios, and ranges.

James Radio Shop, 215 N. Western Ave., for example, advertised, "1936 Motorola and Zenith Auto Radios, \$18.50 and up," whereas the price of \$18.50 did not apply to the 1936 Motorolas or Zeniths.

Standard Utilities, Inc., 201 N. LaSalle St., worded its copy to read, "Magic Chef, Crown, Moore, Round Oak Gas Ranges, and others, as low as \$24" and none of the makes mentioned were for sale for \$24.

In several other instances, the Bureau found that although advertisements were above suspicion or criticism, the sales practices pursued in serving customers who responded have smacked of "bait" and have made lies out of the original advertisements.

Investigation and customer complaints along these lines revealed:

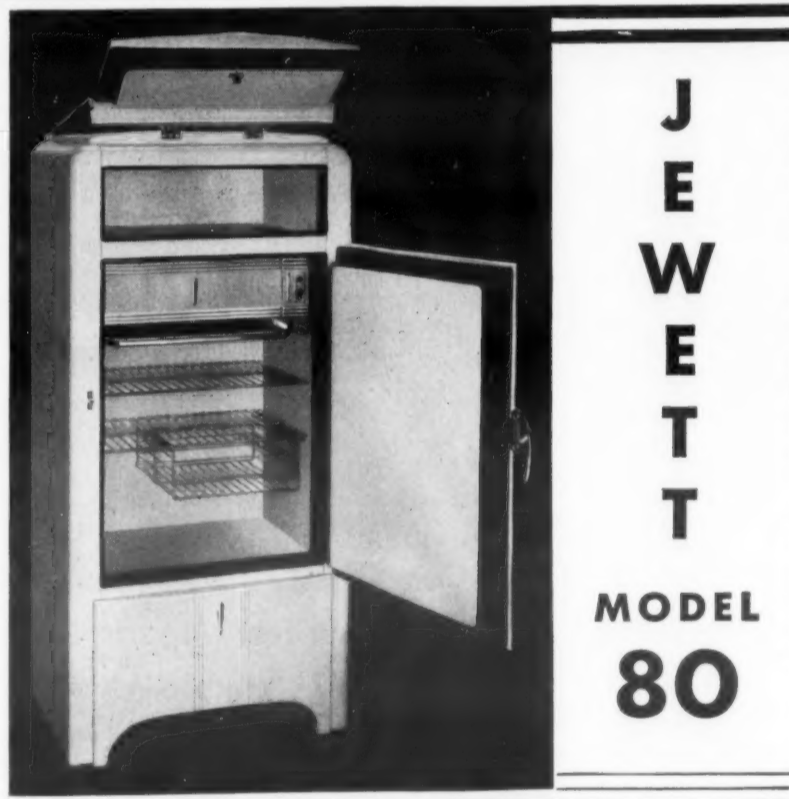
That salespersons in certain stores are reluctant to display advertised merchandise and disperse it.

That all the well-known "switching" tactics are used to discourage the customer from purchasing the advertised merchandise.

That, when these methods fail and the customer insists on the purchase of an article which was advertised, delivery of that article is delayed and, in the meantime, attempts to "switch" to higher-priced merchandise are repeated.

That certain dealers advertise certain articles when they have only one in stock.

That some salespersons make verbal assurances and guarantees regarding articles, such representations being utterly beyond the intention of the stores to fulfill.



J
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MODEL
80

THE REFRIGERATOR THAT SUCCESSFULLY COMBATS LOW PRICE COMPETITION!

Along side of the highest priced refrigerators, the Jewett Model 80 stands out conspicuously for its outward beauty, its inbuilt quality, its quiet performance, its economy of operation. Equally important, it is priced to get the business no matter how tough competition may be. It is the refrigerator you need to clinch the business that is now passing you by. Write or wire for exclusive dealer plan!

ONE SIZE ONLY

Makes possible maximum production economy and low retail price. 15.5 sq. ft. shelf area.

CHILLED HUMIDIFIER

Automatically operated hinged door. Maintains temperature of 45 degrees for storage of fruits and vegetables. Entirely Eliminates drying out.

THE JEWETT REFRIGERATOR COMPANY

COLD STORAGE COMPARTMENT

Oversized, providing ample room for fast freezing of 17 lbs. of ice cubes. Keeps frozen foods in prime condition indefinitely.

TO AGGRESSIVE DEALERS

Jewett also supplies commercial refrigerators of practically every type. Write for catalog showing bulk and ice cube makers, service and mortuary refrigerators, etc.

Established 1849 BUFFALO, NEW YORK



WE NOMINATE!

The National Refrigeration Industry, without regard to personal political views of its members has for years, nominated "Commonwealth" as their choice for the responsible task of making good connections.

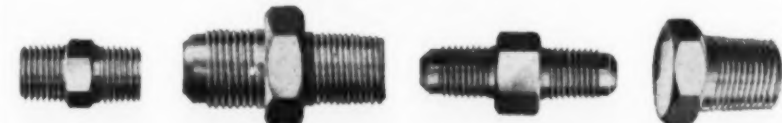
In refrigeration, as in politics, the importance of connections in which implicit confidence can be reposed, cannot be too strongly emphasized.

When Commonwealth is selected as the preferred source of seepage-proof fittings for the automatic refrigeration industry, all members can consider the fittings question completely solved for ever after.

Commonwealth specializes, not only on standard fittings but also for the many special installations which occur so frequently.

When requiring standard, semi-standard or special refrigeration fittings, consult Commonwealth as the choice of all leaders of the industry.

COMMONWEALTH BRASS CORP.
Commonwealth at Grand Trunk R.R.
DETROIT, MICH.



860 Frigidaire Units Sold in West Penn Spring Campaign

FAIRMONT, W. Va.—Smashing all its previous records for spring Frigidaire campaigns by approximately \$30,000, the Monongahela West Penn Public Service Co. closed its six weeks' drive with \$170,095.25 in sales, the equivalent of 170% of its quota.

Throughout the territory, 860 domestic units were sold during the campaign.

The company's Southern division, under the management of Karl Sommers, won first place in the drive with 308.3% of its quota; Elkins division was second, with 224.8%; Fairmont, with the largest quota on any division, reached third with 180.9% of it; Clarksburg, fourth, 168.8%; Parkersburg, fifth, 157.5%; Panhandle division, sixth, 150.5%; and Morgantown, seventh, 147%.

Of the individual salesmen, J. S. Killian of Grafton took first place with sales of \$11,245.07; Lee Grimm of Elkins, second with \$9,427; N. M. Jackson of Clarksburg, third with \$9,164.65; and H. H. Powell of Fairmont, fourth with \$8,422.36.

Fifth place went to Homer Deem of Parkersburg, with sales of \$8,207.82; E. R. Hooper, of Weirton sixth, with \$8,163.07; V. O. Moore, of Shinnston, seventh, with \$7,383.70; D. R. Helmick, of Parkersburg, eighth, with \$5,983.15; Harry P. Linn, of Fairmont, ninth with \$5,700.12; and tenth to D. F. Zirkel of Parkersburg, with \$5,452.80. Thomas Torch of Morgantown was also in the \$5,000 class with \$5,441.59.

Salesmen with records of \$4,000 or over for the drive included: E. H. Taylor, Parkersburg; H. W. Casteel, Morgantown; Dave F. Nichols, Weston; R. L. Hoffman, Wellsburg; W. C. Weaver, Richwood; Glenn R. Dutton, Clarksburg; R. B. Brooks, and R. C. Brown, both of Fairmont; and H. W. Devitt, Chester.

For the highest sales volume, Mr. Killian received \$60; Mr. Grimm, \$40; and Mr. Jackson, \$20.

W. C. Weaver of Richwood led all district managers, receiving the prize of \$20; Paul Parker of Salem was second for the \$10 prize; and Harold Gibson, of Sutton, third for the \$5 award.

Similar prizes were offered for the three district representatives reporting highest sales volumes. R. R. Curry, of West Union, finished on top in that race, with C. A. Windell, of Hundred, second, and R. R. Ice, of Pine Grove, third.

Sales in last year's spring campaign totaled \$139,000, and in the late summer drive, a total of \$112,000 was reported.

Shaw To Manage F-M Sales in Southwest

INDIANAPOLIS — Appointment of W. S. Shaw as southwestern district manager of the home appliance section of Fairbanks, Morse & Co. was announced here recently by W. Paul Jones, general manager.

Mr. Shaw has been connected with the electrical appliance industry since 1920, at which time he joined the General Electric merchandising department. After a year in the factory at Bridgeport, Conn., he was transferred to Atlanta, Ga. where he became southern zone manager. He returned to Bridgeport in 1929 and spent two years in sales development work on G-E sunlamps.

Following this, Mr. Shaw was for two years manager of appliance sales for the General Electric Supply Co. in the Chicago district, and, for one year, Chicago merchandise representative for this firm, contacting utilities and holding companies. For the past year and a half he has represented the Radio Corp. of America in Kansas, Missouri, Oklahoma, and Texas.

200 Dealers Attend Crosley Showing of Interstate

NEW ORLEANS—More than 200 dealers from Louisiana and Mississippi attended the new line showing of 1937 Crosley radios which the Interstate Electric Co., Crosley distributor in this territory, held at the Monteleone Hotel here recently.

George H. Lasley, Crosley district manager, demonstrated the selling points of the new line. He was assisted by the following executives of the distributorship: G. H. Rasch, secretary-treasurer; H. V. Moninger, advertising manager; and L. E. Cope, general sales representative. P. Stern, president of Interstate, also addressed the dealers.

In addition to the new radio line, Shelvador electric refrigerators, Savamaid washers and ironers, and Crosley Koldrink bottle coolers were also shown.

The meeting ended with a dinner, floor show, and dance for dealers and their wives.



*It's not done
with mirrors!*

Mechanical refrigeration is almost magic to many buyers of refrigerators. But there is no trick to the honest, dependable, economical refrigeration that today's householders can buy.

It is essentially a combination of two things . . . an efficient unit to take heat out of the cabinet and good insulation to keep it out. How well these two perform is the measure of refrigeration cost. And to assure low cost for the entire life of the refrigerator, these elements must be the best.

Beauty of line and hardware, convenient equipment, spotlessness, are all relatively important. But they have nothing to do with refrigeration. Sell them, of course. But sell the things that

assure good refrigeration, too. If you are fortunate enough to be selling refrigerators with Dry-Zero Insulation, you will find this one of your most effective selling points. For it actually saves from 20c to \$2.00 per month in cost of operation.

Dry-Zero Insulation not only keeps heat out more effectively, but it is practically unaffected by moisture and thus assures *continued* efficient operation for the life of the refrigerator.

Dry-Zero Corporation, Merchandise Mart, Chicago, Illinois.

Canadian office, 687 Broadview Avenue, Toronto.

DRY-ZERO
INSULATION
The Most Efficient
Commercial Insulant Known

Dry-Zero Corporation •

222 North Bank Drive
CHICAGO, ILLINOIS

687 Broadview Ave.
TORONTO, ONTARIO

Around the World

With George F. Taubeneck

Ever since the editor of the News started his trip around the world on Jan. 8, we have been looking forward to his story about Java because a visitor from that country planted the seed which grew into the plan for this travelog.

It was about a year ago that Mr. T. P. Timmerman of the General Netherland-Indies Electrical Co., Soerabaya, Java, called on F. M. Cockrell, publisher of the News, in Detroit.

Like many other visitors, Mr. Timmerman was seeking information about various manufacturers and their products, but the information he gave was unusually interesting and enlightening.

Imagine a country where the temperature hangs round 90° and the humidity touches 90% every day in the year, with thousands of white people in addition to the millions of natives! No wonder the "contract man" from Europe seldom stays more than a few years.

Picture the possibilities of refrigeration and air conditioning as a means of making all tropical regions more livable and thereby opening up vast natural resources which are now practically inaccessible!

Other foreign visitors, letters from foreign subscribers, export figures—all served to nourish the idea that the world-wide markets for refrigeration and air-conditioning equipment had become important news.

It was not long after Mr. Timmerman's visit, therefore, that maps were being studied in the News offices with a view to ultimate world-wide coverage of industry news.

Refrigerator Market Nearly Saturated in New Guinea

Papua & New Guinea

Perhaps the only portion of the world for which saturation of the refrigeration market may be claimed is British-controlled New Guinea. There no refrigerator has been sold for more than two years, inasmuch as every electricity-using family which could possibly pay for one already had become a user. More than two-thirds of these are Kelvinators, imported by the British New Guinea Co., the remainder are Frigidaires, sold by Burns-Philp.

Western New Guinea is Dutch. Southeastern portion of the vast island is called Papua, and is entirely British. Northeastern portion was formerly German, but is now governed by Australia (which also administers Papua) under a League of Nations mandate.

Papua is a most primitive country, with natives of Malayan extraction who live by fishing and drying coconut meat (copra—used in soap making, and for other commercial uses). They wear few clothes—the women going bare-breasted, the men wearing a G-string, the children running about with nothing on at all—have no gods, live simply, eat plentifully, have no traditional ceremonials.

Port Moresby is the trading center of this portion of New Guinea, and it is typically an outpost. We found a clerk in one of the stores who wished devoutly he could save enough to get back to America. Life there, he averred, was so dull that the whole town would run to see a dog-fight.

Built on a slight patch of land between two hills, Port Moresby is situated on a well-protected, oval harbor. It reminds one of Pago Pago, Samoa. On the opposite side of this harbor are some native villages, which may be reached by hiring a car, or by boat. These villages are built out over the water, on tall poles. They face inside, and empty onto the sole village street. Entrance is gained by climbing a 12-foot ladder, which may be pulled up into the house.

Fly river is 650 miles long, navigable for 500 miles, and has tides

for 200 miles from the mouth. Along this river, as well as in the Gulf of Papua, the natives do a great deal of canoeing, both for fun and profit, in their swift, easily handled outriggers.

Diseases are scarce in Papua, and in the higher portions of the country the climate is even bracing. They have two well-defined seasons; the monsoon period (December to April), and the tradewind season (May to November). At Port Moresby, possibly the most uncomfortable spot on Papua, the tradewind season approximates a New South Wales summer. A quick 20-mile inland jungle trip from Port Moresby takes one to Rouna Falls, which aren't so much in themselves, but which are made worthwhile by the bush scenery en route, the birds, beasts, and butterflies.

A few miles off the southeastern portion of Papua lies Samarai, which is the sort of South Sea island movie travelog photographers like to "shoot." It's quite a garden, with palms and flowers, modern dwellings and buildings, sports parks, and landscaped terraces all setting off one another. Only 50 acres in all, you can walk around it in 20 minutes if you're in reasonably good condition. Samarai is quite a trading center for small lugers and tramp steamers, and also is favorite anchorage of the sleek private yachts which a-cruising go in South Sea waters.

An Australian army detachment surprised the Deutschlanders in German New Guinea in the autumn of 1914, and ever since that time Australia has controlled this section of New Guinea. The League of Nations formally handed it over, on a mandate basis, in December, 1920.

Rabaul is capital of this Territory, and is a lovely tropical port, with that irresistible combination of mountain background, island-dotted approach, and palm-fringed coast. The Bee Hives, two volcanic rocks jutting high out of the water in the harbor, give it a distinguishing feature.

Roofs are thatched from Sago-palm leaves; flooring consists of roughly-hewn and loosely-laid planks. Inside are the older native women, cooking,

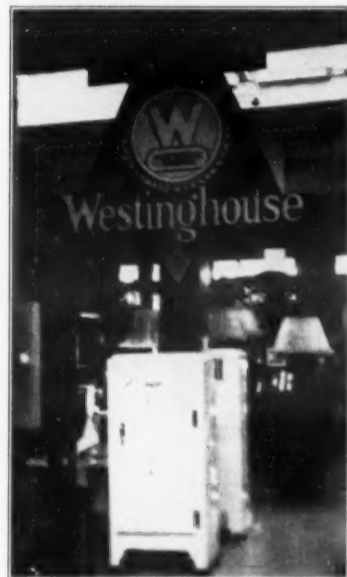
moulding pottery, or snoozing. The men are also inside, just snoozing. Outside, along the street and in shaded patches adjacent to the street, the native children scamper and frolic about. The boys are shy, the girls coquettish, the little tots giggle. They have a game which, as nearly as I could figure out, is something like our old pastime of pitching pennies at a crack—small rocks being their substitutes for pennies.

The men do some work, although we didn't catch them at it. They fish for trepang (or bech-de-mer, a repugnant seaworm found in great numbers here and there and along the Great Barrier Reef, highly prized by the Chinese for use in soups), for crabs and cray fish, for dugong, for oysters and mullet. Younger men and boys knock coconuts off the palms, split them by cracking them over a stick fixed in the ground, and dry the meat for sale as copra. Some pearl diving has been done also.

Inland natives, who live in tree huts, grow tobacco, yams, sugar cane, bananas, sweet potatoes, rubber, hemp, coffee, cocoa, millet, rice, castor and soya beans—under supervision.

New Guinea has both Australian and Malayan flora and fauna, indicating that it once was part of the land bridge which geologists say

Javanese Display



This might well be a display in any modern American retail store, but in reality these Westinghouse refrigerators are on a dealer's floor in Batavia, Java.

connected Australia with Asia in prehistoric times.

The cassowary, familiar to all Australians, is present in numbers in New Guinea, as are wallabies, tree kangaroos, flying opossums, and kangaroo rats. Among the birds are crowned pigeons, birds of paradise, doves, owls, parrots, cockatoos, and white herons.

The Owen Stanley mountain chain, with a 13,200-foot-high peak in Mount Victoria, crosses Papua from east to west. Several rivers keep Papua well watered, among them being the Salamaua, the port of communication post for the Guinea goldfields. Airplanes leave Salamaua for Wau, not boats or trains. And herein lies a story.

New Guinea has long been known to be a mineral treasurehouse. In fact, that's how it acquired its name (from Portuguese explorers, who found it in the sixteenth century). At various times gold, copper, tin, lead, and zinc have been quarried there.

But there was an obstacle, and an almost literally unsurmountable one, to profitable mining in New Guinea. And that was the mighty mountain range which separated the mineral deposits from the sea coast. Machinery could not be transported there; ore could not be carried back, except at prohibitive cost.

But a syndicate of British, American, and Australian capitalists solved the problem. They established the Guinea Airways, and flew mining machinery up to the deposits. In big twin-motored Fokker planes, which made in half an hour a trip formerly requiring at least eight days, they sent up machinery piece-by-piece, re-assembled it, sent up miners, and began mining.

Today the Guinea Airways maintains a regular service from Samarai to Wau. Miners go to and fro. Machinery and supplies—everything from food to grand pianos—goes up. Ore comes back. And the venture is paying high profits.

We didn't get to make this interesting trip, but a fellow-passenger on our boat to Papua, F. W. TORRINGTON of Sydney, told us all about it. He was one of the original investors in this enterprise, and said he has been more than satisfied with the return on his investment.

Civilization Comes to Papua



Editor George Taubeneck's suggested caption for this photograph was "savagery and civilization" referring to the contrast provided by the son of a headhunter in the left foreground and the gasoline pump. At the right George makes friends with some of the Papuan younger generation.

Big Service Problem in Java as Climate Puts Burden on Unit

Java—Whew!

It was in Java that my sins all rolled away. Never has this writer perspired so copiously, or felt so miserably inadequate, as in Soerabaya.

We don't mean to speak harshly of Java—really we recommend highly that you plan to see it some day.

It is another world, a world packed with strange people, odd customs, delightful scenery, unexpected sights, and embellished with good hotels. When we got into the heart of this teeming land, we felt we really had begun to travel, and to see the world.

Furthermore, we were greeted in Soerabaya and Batavia by some of the finest gentlemen it has been our pleasure to meet on this trip.

But there's no getting around the fact that Java needs air conditioning badly—at least, the white folk who work and live there need it.

T. P. TIMMERMAN of the General Netherland-Indies Electriciteit Mij, which is the public utility which serves practically all Java with the exception of Batavia, told us that Soerabaya swelters in constant temperature of from 85 to 95 degrees, with at least 90 per cent humidity.

That, mind you, is all year 'round! (Think how hard an electric refrigerator must work in that climate).

Few Installations

Despite this immense need for air conditioning, it is scarcely known in Java. G. C. BUEBERS of Messrs. I. M. Gebr. Van Swaay, Sociëteitstraat 9, Soerabaya, the Carrier-Brunswick dealer for Java, told us that there

were only eight installations made up to that time on the island.

All these installations were for sleeping rooms. An ordinary bedroom cooling installation runs about \$1,250 there. (Everything is high in Java, because Holland, the mother country, is still on the gold standard, which makes the rate of exchange unfavorable on goods imported from other countries).

Expansion valve trouble has been experienced in these installations; also leaky gaskets. It's necessary to train native Malays to handle service, and that's not an especially easy assignment.

Both Mr. Buebers and Mr. Timmerman are anxious to make an installation in a theatre and in a restaurant, for the publicity value if not for profit. As yet Java prospects don't really know the meaning of air conditioning.

Service Is a Problem

Mr. Timmerman estimates that 600 household electric refrigerators are now installed on his lines.

Java is said to have almost 45,000,000 inhabitants; but even so, the market for refrigeration equipment is comparatively small; for the natives, who account for all but a handful of the population, live on a few cents a day.

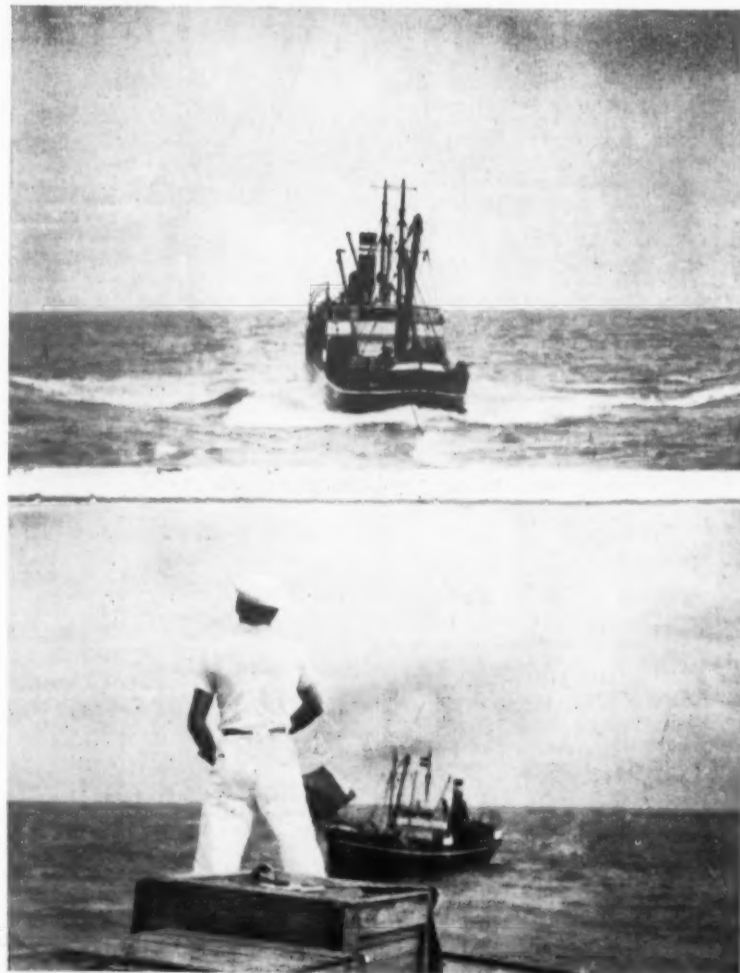
Service is the biggest problem in connection with electric refrigeration in Java, he reiterates. The Malays are excellent mechanics, but somebody has to be brought out from Europe or America to train and supervise them, and that costs money. Too, (Continued on Page 5, Column 1)

Scenes from Papua & New Guinea



(Upper left) The bank at Port Moresby, Papua. Note the architecture, which is typical of this part of the tropics. (Upper right) Loading a plane for a trip to the gold fields. (Lower left) Papuan boys diving from dugout canoes for coins. (Lower right) Port Moresby office of British New Guinea Co., which handles Kelvinators.

George Photographs a Rescue at Sea



In last week's instalment of the "Around the World" series George told of the exciting incident at sea when the S.S. Marella on which he was a passenger answered the S.O.S. of the disabled freighter Nalpa and after considerable maneuvering got a tow line to her. Here are two of the editor's photographs of the incident.

Dealers in Soerabaya



T. P. Timmerman (left) of the General Netherland-Indies Electriciteit Mij, major Java public utility, who visited the News last year, gave the editor an insight into Javanese refrigeration problems. G. C. Buebers (right) is with the dealership handling Carrier air-conditioning equipment.

(Continued from Page 4, Column 5)

refrigeration is intricate for a Malay. Mr. Timmerman also insists that American-made appliances simply don't stand up in the tropics. They are not sufficiently rustproofed, nor are they made of properly resistant materials. Insulation, finish, and controls are constant offenders.

In particular he points an accusing finger at electric ranges made in the United States. These have a black eye in Java, he declares, because of the rapidity with which the heating element deteriorates.

Ranges made in Holland and Germany stand up much better, according to Mr. Timmerman. Of these latter more than 1,000 have been sold in Soerabaya and environs in the last 18 months! There is no natural gas in Java, and electric cooking can compete easily with artificial gas cooking in terms of cost. Moreover, the climate makes "cool cooking by electricity" attractive, even though native cooks come cheap.

No washing machines are in use in Java, nor very many vacuum cleaners, because Malay servants cost so little. However, there are 200 water heaters and 300 water coolers installed on Mr. Timmerman's lines.

Most cooking is done on charcoal stoves. Next to charcoal, petroleum is the chief fuel.

Javanese firms must pay 30% duty on all refrigeration equipment they import, and they import everything. Inasmuch as teakwood is very cheap, it is possible that commercial cabinets might be made in Java, if, as, and when that branch of the business gets going.

In this connection Mr. Timmerman is quite interested in solid carbon dioxide as a refrigerant, and is making some investigations regarding the possibilities of producing it in Java.

Oil Burners

O. C. PICARD of N. V. Carl Schli-
per Handel Mij, Electrolux dealer for

Java (this is one of the biggest import-ing and mercantile houses in the country) told us that most of the Electrolux refrigerators his firm has sold have been of the oil-burning variety. He had no figures to release.

A few have been sold for use with gas, and possibly half a dozen with electric heating elements; but most of them have gone into the interior, where electricity is not available, and hence have had kerosene burners.

Until the air-cooled Electrolux came along, they had plenty of service difficulties. Still do, in fact, on the old water-cooled jobs. But the air-cooled models have given them almost no trouble at all.

This firm imports Electrolux refrigerators directly from Sweden.

Both Mr. Picard and Mr. Timmerman spell the city in which they live "Soerabaia." It's also spelled Soerabaja, Soerabaya, Sourabaja, and Surabaya. Take your choice.

Firma Lauw Tjin

Refrigeration products are handled in Java through a few big, old, well-established firms which have their own branches in the various larger cities on the island. Most of them have headquarters in Batavia.

General Electric, Frigidaire, and Kelvinator are said to get most of the business.

Kelvinator is sold by a big Chinese house, Firma Lauw Tjin, which also sells, among other things, the following American products: Bristol-Myers proprietary goods, Schaeffer pens, and Winchester batteries. Most of the manufacturers this house represents are Australian and French. Everything Firma Lauw Tjin sells is at wholesale—except Kelvinator.

We saw representatives of this firm at both Soerabaya and Batavia.

TJIO THIANG SOEY, general manager of the concern, has his head-

Javanese Installation Crew



On their way to make an installation of a General Electric commercial refrigeration system. These Malaysians are good mechanics, and eager to learn, but there is a dearth of competent engineers to train them.

quarters office in Batavia. According to Mr. Soey, the progress of air conditioning in Java is hampered by the high cost of both equipment and operation.

To condition an ordinary sleeping room would cost somewhere in the neighborhood of \$1,500. Moreover, city water is costly, and the quantities most air-conditioning installations use would make operation almost out of the question.

Some Kelvinator commercial equipment has been sold, although there isn't a ready market, it seems. All such installations must be especially designed and built.

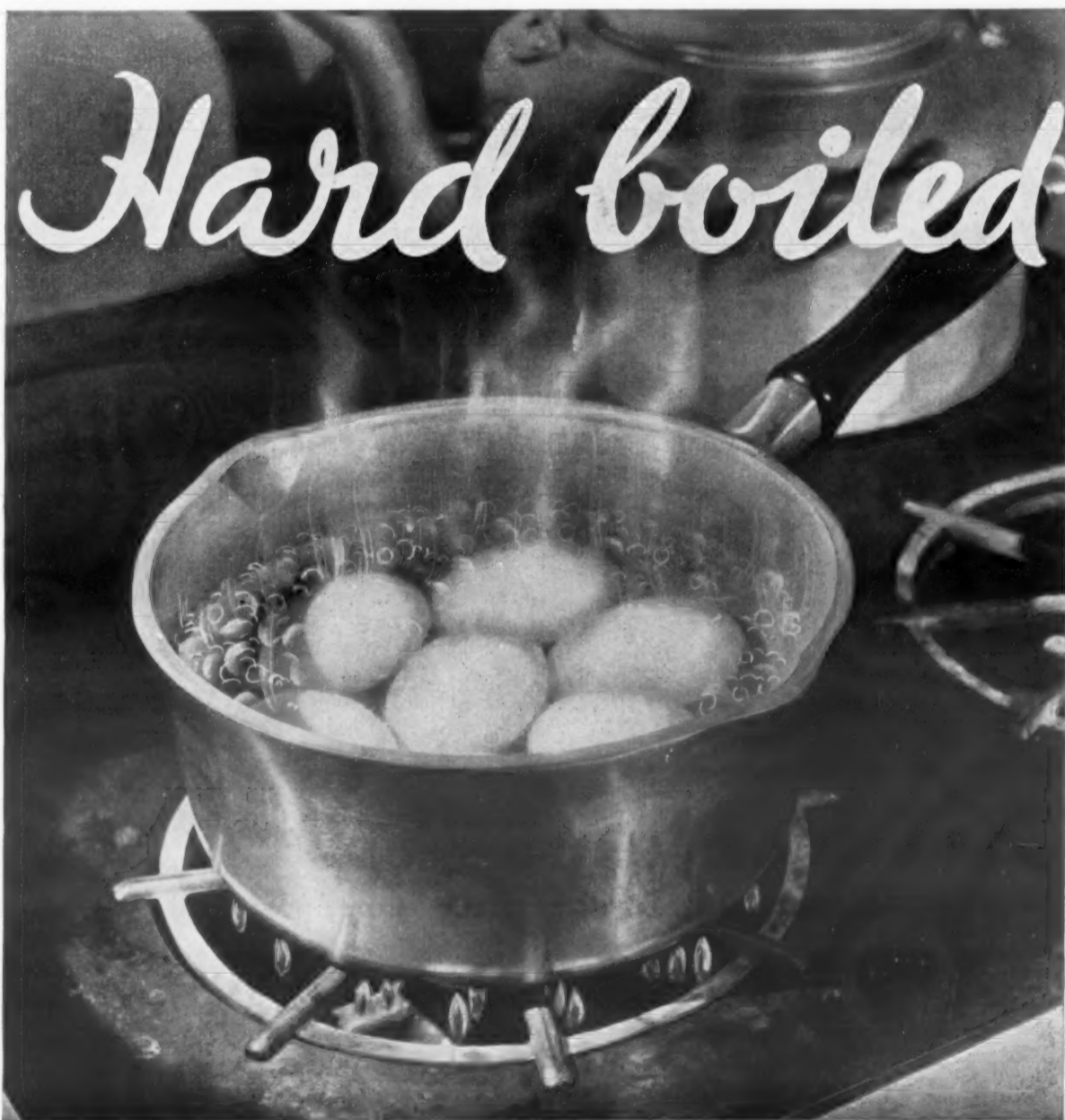
At present Firma Lauw Tjin engineers are making a combination meat

cooler and ice cube maker for a restaurant, using teakwood and cork. This job will have two sets of evaporators, expansion valves, and solenoids, with fin coils, all operating off the same compressor.

Both Kelvinator and Leonard household refrigerators are sold through the firm's stores in Batavia, Soerabaya, Bandoeng, Semarang, and Cheribon. Kelvinators are sold directly. Leonards are handled through sub-agents.

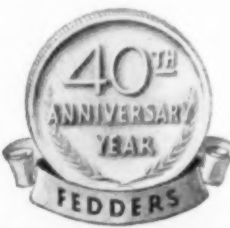
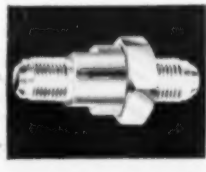
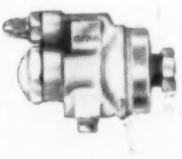
At Batavia the firm maintains five salesmen and five service men; at Soerabaya, three salesmen and two service men; at Semarang, two salesmen and two service men; at Bandoeng, two salesmen and two service men; at Bandoeng, two salesmen and two service men; at Bandoeng, two salesmen and two service men.

(Concluded on Page 6, Column 1)



FEDDERS FAMILY OF VALVES

Two-Temperature Snap Action Valves, Model 33 and Model 33 High Capacity Thermostatic Expansion Valves, Constant Pressure Valves, Automatic Expansion Valves, Check Valves. Patented and Patents Pending.



FEDDERS MANUFACTURING CO. BUFFALO N. Y., U. S. A.

114 E. 16th St.
NEW YORK

303 E. Sixth St.
CINCINNATI

209 S. Pearl St.
DALLAS

1200 Arch St.
PHILADELPHIA

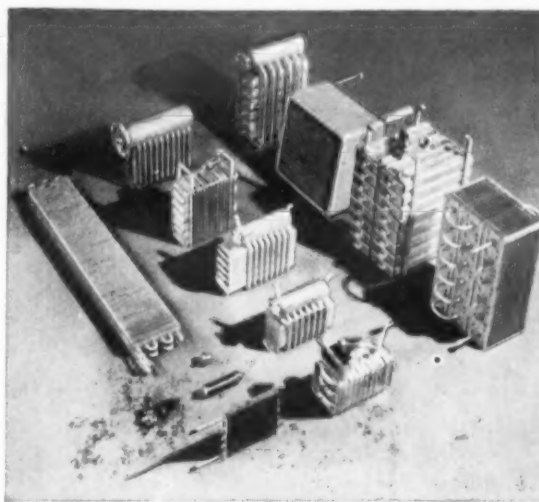
603 W. Washington Blvd.
CHICAGO

175 Luckie St. N.W.
ATLANTA

1501 W. Eighth St.
LOS ANGELES

Refrigeration
Men are
standardizing on
FEDDERS
QUALITY LOW SIDES
AND VALVES

All-copper and brass construction . . . a complete line of types, sizes and capacities . . . built to standard dimensions . . . absolutely dehydrated . . . tested and guaranteed—they assure and maintain efficient heat transfer and dependable performance. Sold by representative suppliers everywhere, you get what you need when you need it, where you need it.



Four Complete Lines of Fed-R-Fin, Flat Fin, Fluted Fin and Finless Coils

Ice Cube Making and Cabinet Cooling Evaporators

Forcedraft Unit Coolers

Condensers

Heat Interchanger Fittings

They Head Batavia Dealerships



(Above) Tjio Thiang Soey, general manager of the house of Firma Lauw Tjin, a large and prosperous Chinese-owned commercial establishment which retails Kelvinators in Java. (Below) A representative of the Frigidaire dealer for Java proudly points to the nameplate of his company.

(Concluded from Page 5, Column 5) eng, two salesmen and one service man; and at Cheribon, one salesman and one service man.

The salesmen also do wholesale work on the firm's other merchandise. But they have been carefully schooled in the Kelvinator story. Mr. Soey claims they are good closers.

Servicemen are Malay, Dutch, and Chinese—all graduates of the Java-ness "middle school," which is equivalent to high school training. JOHN ZYLSTRA is service manager. He worked for a time in the Kelvinator factory at Detroit.

From the municipal power of Batavia Firma Lauw Tjin receives daily advice as to new connections (meters), and from the municipality new registrants (citizens) are reported. These lists, plus tips from friends and from dealers with whom the firm does wholesale business, provide prospects.

Salesmen work on salary plus bonus.

Commercial Business

Frigidaire is sold in Java by Lindeteves-Stokvis, which is one of the biggest commercial houses in the Dutch East Indies. This firm specializes in machinery and mechanical equipment of all kinds, also building materials.

On the day we called at this firm's headquarters in Batavia, it seemed to be a very busy time. (Most white men in Java seem to have more work to

do than they can get done; there is an acute shortage of executive and supervisory talent.)

Nevertheless we did learn that Frigidaire has cornered the commercial refrigeration market in Java, and did the job early—just as seems to be the case everywhere we go.

For this job they had to train Chinese salesmen, for most of the establishments which might be prospects for commercial installations are run by Chinese.

Although in the main the Chinese are among the most honest people on earth, Lindeteves-Stokvis and other refrigeration establishments have learned to be pretty careful in selling on time payments, for some Chinese operators have a way of going out of business suddenly, and leaving no address. (A few weeks later they may open up next door to their old stand, using a new name.)

One story is told of a Chinese general merchant who purchased 50 household refrigerators on 60 days credit, received a quantity discount, sold the refrigerators out at what they cost him, and used the money thus obtained to finance some other part of his business!

In the main, though, the Chinese merchant is an exceptionally honest fellow; and "his word is as good as his bond," literally. Oral contracts always prevail when dealing with these men.

Gibson Good

A live-wire dealer is this N. V. Handel Maatschappij Verkerk & Co. (Handel Maatschappij, which is the "handle" so many Dutch firms wear, means "trading company"), which sells Gibson in Java.

Chief business is selling Nash and Hillman (English make) motor cars. The same salesmen push both automobiles and refrigerators. When a prospect comes into the handsome showroom looking for one product, the salesman always shows them the other, too.

O. W. BORGER of that firm told us that the "Gibson" (as he pronounced it) was "a good box." He had had one in his home for two years, and absolutely no trouble with it. Furthermore, it was easy for the Malay mechanics the firm employs to service motor cars to learn to service Gibson refrigerators.

Previous to taking on the Gibson franchise, this concern sold Bohn electric refrigerators, which they also found relatively trouble-free.

As a matter of fact, Verkerk & Co. thinks the refrigerator business is a good business. Its volume has not been large, but it has been profitable.

Best seller is the 5 cu. ft. "Gibson," which retails for 475 guilders (about \$300). Yes, they sell on time. Finance their own paper, too—anything to make money. Terms are arranged to suit the prospect.

Mr. Borger, a most affable and engaging fellow, dressed in a high-collared, brass-buttoned white uniform something like those worn by ship's officers, told us that he had first seen ELECTRIC REFRIGERATION NEWS in the hands of a Dutch engineer, and had immediately sent in his subscription after glancing over that copy.

General Electric Leads

It may not seem logical to postpone discussion of the generally admitted leader in electric refrigeration sales, General Electric, until the last; but since that discussion will shade naturally into a treatment of Java as a land and as a market, this seemed the best place for it.

From Mr. Timmerman and from Mr. Beerstecher, the latter being the refrigeration manager of the International General Electric Co. in Batavia, we learned most of what we know about Java. Both entertained us in their homes for tiffin, both took us on long automobile tours of inspection, and both answered in considerable detail our questions about this most fascinating country.

Mr. Beerstecher was born in South Africa, and spent his youth there. Later he came to the United States. The last 17 years he has spent in Java.

Since 1931 the International General Electric Co. has been selling Monitor Top refrigerators in Java with its own organization. Things have begun to hum during the last two years, after Mr. Beerstecher's incessant hammering finally succeeded in getting electric rates low enough to make the use of electrical appliances seem attractive to the householder.

Principle difficulty encountered by Mr. Beerstecher is that of getting salesmen. Because the market for household electric refrigerators, Mr. Beerstecher finds, is confined almost entirely to "whites," the salesmen must be Europeans. But Europeans are hard to obtain.

Most "whites" who come to Java have jobs waiting for them when they arrive; they come on contract. If they settle in Java, and raise a family, they send their sons back to their home country for higher education. If these sons return to Java, they also come "on contract." Almost nobody goes there "on spec."

Hence, salesmen are scarce. Those that can be lured into service must be well paid, and must be furnished a car. That boosts selling costs. And how, Mr. Beerstecher wonders, do you make money out of this electric refrigeration business—even when you are the best in town? (His question, we replied, has caused a lot of head-scratching and hair-graying in the United States.)

The Batavian market is limited to the 34,000 Europeans, and to the wealthy Chinese—who, however, must be taught the need for and advantages of refrigeration. In China, everything is served hot. For centuries the people have been taught not to eat or drink anything cold.

Few other electrical appliances are sold in Batavia, or in all Java. Laundry is cheap, and so is rug beating. Every home has 2, 3, 4 or more Malay servants.

No Savvy

Two difficulties beset the writer during a most interesting journey alone into the heart of Java and out again: (1) the difficulty of obtaining food; and (2) the difficulty of communicating with people in a non-English-speaking country.

The first difficulty follows right along with this discussion of commer-

cial refrigeration. It was our observation that there is a great scarcity of decent food-serving establishments all through Java.

Javanese do their own cooking. So do the Chinese, although there are a few Chinese restaurants which serve savory repasts in Batavia and, we presume, Soerabaya.

The small European population eats at home, at a private club (of which there is one in each major city), or at one of the two or three first-class hotels which you find in the bigger places. So the market for commercial equipment appears to be relatively small.

We had this fact brought home to us very strongly through forced investigations. Here's how it happened:

Acting on the advice of a number of people, we have been "traveling light" on this trip. Baggage, we were told, is a great nuisance, an inconvenience, an expense, and frequently causes delays in your schedule. So we started out with few clothes.

As a result, we have been needing clothing all through the tropics. Despite purchases in Honolulu and Suva, the problem of keeping enough shirts, socks, and linens laundered—and suits cleaned—for changes twice and three times a day are necessary in the tropics—has kept us worried.

When we got off at Soerabaya, we were down to one white shirt, a polo shirt, a pair of khaki shorts, and a white Palm Beach coat. Well, we thought, this should be enough to get by in the interior of Java, surely. But it wasn't.

When we got up to Bandoeng, a very modern city high in the mountains, we registered at an excellent hotel, the Praenger. The clerk who signed us in spoke English, which was a joy after wrestling all day with railway clerks and conductors who could not converse in our tongue.

After congratulating ourselves on the fine quarters, taking a good bath (we'll tell you about those baths later), and putting on the white shirt, tie, and Palm Beach coat, we marched over to the dining room. But no.

Politely, in Dutch, and with signs, we were told, or shown, that we were not sufficiently dressed to enter the dining room. All the other diners, we perceived, were in white evening dress. Obviously our shorts would not do—even though we had paid for the meal (Java hotels charge flat rate for room and food).

So we went looking for food. For an hour and half we looked, but no luck. The English-speaking clerk at the Praenger was off duty, and not another soul could we find who could understand what we wanted.

Incidentally, the same performance was repeated, step-by-step, in Batavia next evening, at the famous Hotel des Indes. And there are other chapters to this "No savvy" story:

We managed to get on the plane for Batavia all right at Bandoeng, and after a rather hazy trip over a volcanic region, made a good landing, and were transferred to a car. When we were let out, we found ourselves not in Batavia proper, but in Weltevreden, a residential suburb.

For almost three-quarters of an hour we tried vainly to get a taxi. Then, after getting one, we were still no further, for neither that driver, nor the next three we corralled, could speak English.

If you think you are a good pantomimist, just try getting someplace in a strange city in a strange country, with taxi drivers of another race and unable to speak or read your language, and nobody available as a translator.

Eventually we found one who could say "yes," and "yes, mister," and who seemed to comprehend the address we gave him. He didn't, it turned out, and we rode and rode and rode, seeing much of Batavia en route.

Eventually we wound up at the docks, where we hustled around and dug up a Chinaman who savvied where we wanted to go, and directed the driver to the offices of the International General Electric Co.

With the help of L. H. C. Beerstecher of that organization we got to Lindeteves-Stokvis and to N. V. Verkerk & Co., Gibson dealer; but our service fell down when it came to locating Messrs. N. V. Handel-Maatschappij "Deli-Atjeh," which we had down on the list as the Crosley dealer, and subscriber D. G. Sigmond, Esq.

Honest Injun, we spent part of a morning and most of that afternoon looking for these two addresses. The driver could speak practically no English, nor, it appeared, could anyone at the places we stopped for advice and instructions (Mr. Beerstecher was out during this period).

There are two words in Dutch, we soon learned by observation, which have English approximations: "Stop" and "bier." We used each. During the two days we couldn't get meals, we lived on "bier" and potato chips. (Which will surprise our friends in Australia, who firmly believe we can't drink beer.)

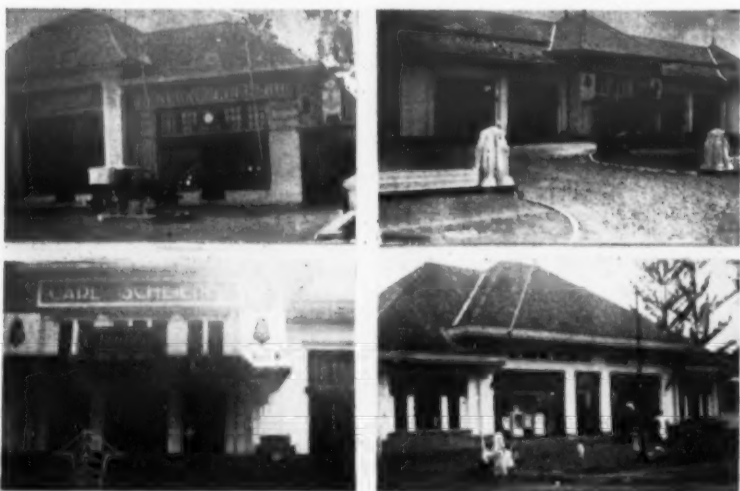
At that, it wasn't so bad as it sounds. Both at the Praenger in Bandoeng and the des Indes in Batavia, there are open-air pavilions where one may sip "bier" and listen to glorious music. Which we did. The music was the best we had heard since 1935, and we fed the soul, if not the stomach.

Two Leading Java Retailers



Two Javanese dealers hail George as he visits their stores. Above is O. W. Borger of Verkerk & Co., which handles Gibson refrigerators. In the picture below is Mr. Beerstecher, refrigeration manager, at the office of International General Electric Co.

Dealer Showrooms in Batavia



These pictures of Batavia refrigeration dealer headquarters are indicative of the type of establishments which handle refrigeration products in Java. Dealer headquarters shown are (upper left) General Electric; (upper right and lower left) Electrolux; (lower right) Gibson.

Cities Plan Formation of Kitchen Planning Services & Establishment of Model Kitchen as Program Gets Started

(Concluded from Page 1, Column 2)

C. E. Greenwood, and R. E. Barnes. Future schedules of these representatives will take them to Virginia, West Virginia, Michigan, Indiana, Illinois, and Wisconsin.

In Atlanta, where C. A. Collier, of Georgia Power Co. is regional director, a meeting of 40 interested persons was addressed by Mr. Martin on April 14. A committee headed by O. M. Jackson of the utility is now at work planning the best way to apply the kitchen modernization program to this territory.

In Augusta, a bureau has been organized under the chairmanship of Ed. Alrick. Carolina Power Co.'s salesmen and dealers met on April 24 in Charlotte and evidenced considerable interest in the program, according to Mr. Martin's reports.

Birmingham Bureau Formed

Six local bureaus are expected to be established at Birmingham, Ala. where E. W. Ashmead is regional director, it was reported at a meeting of sales directors of Alabama Power Co. recently.

At a later meeting of the Birmingham Electric Co., 50 dealers and utility men established a bureau, electing R. P. McDavid chairman, and D. S. Richards secretary. This bureau has placed an all-electric kitchen in the auditorium of the Birmingham Electric Co., with a trained specialist in charge to give information on kitchen planning and proper arrangement of equipment. The utility has increased the number of home economists to handle this service.

Permanent Exhibit in Boston

A permanent modern kitchen exhibit, centrally located in the shopping district, is part of the extensive program being sponsored by the Edison Electric Illuminating Co. of Boston.

Established and financed by its own organization, the utility invites all local electrical and non-electrical interests to participate in its plans.

A kitchen modernizing contest, at which a series of prizes will be offered for kitchen plans and completed kitchens worked out either by housewives independently or with their architects is being sponsored and awards will be given on the basis of economy of space, efficiency, labor-saving characteristics, and beauty.

In addition, an architects' contest will be staged in which each architect will be allowed \$10 for necessary materials with a prize of \$50 to the winner.

Massachusetts Plans

In Massachusetts The Boston Edison Co. proposes to conduct a series of expositions throughout its entire territory and will install a model electric kitchen in each of its stores. Special publicity, newspaper advertising, direct mail, and display material are planned for each community.

The company's planning service will contain (1) professional lay-out with specifications for a modernized kitchen, (2) reliable cost estimate for the entire modernizing project, (3) assistance in arranging the work to be done, and (4) financial assistance.

Fifteen thousand dollars is the sum proposed by the company for newspaper advertising, with an additional budget for suburban areas.

Twelve all-electric kitchens have already opened for display in Buffalo and suburbs, and six additional ones are in the process of being installed in dealers' stores, reports C. J. Reich-

ert, Niagara & Eastern Power Corp., regional director.

Full support of the Electrical League of the Niagara Frontier is encouraging dealer cooperation, and considerable newspaper advertising is being done to further advance kitchen modernizing throughout this territory, Mr. Reichert says.

After a meeting attended by Dr. Allison in Syracuse, N. Y. at which distributors, dealers, and utility personnel were present, plans for a Syracuse bureau were set underway.

150 Meet in Chattanooga

At Chattanooga, Tenn., 150 persons attended the organization meeting at which W. H. Sears, local architect, was appointed chairman of the bureau.

A complete kitchen, displayed in a central location, a central planning system, advertising program, and planning contest were the promotion schemes drafted at a later meeting.

In Denver, Colo., where James T. Coatsworth is chairman of the Bureau, and G. B. Buck, Public Service Co. of Colorado, regional director, the Public Service Co. has placed its Electric Institute at the disposal of the bureau.

The Denver Post devotes a full page a week to kitchen modernizing, and an extensive radio broadcasting program is contemplated to further activities. The bureau also proposes to offer a kitchen layout service for the benefit of all bureau members.

For all kitchen modernizing activities which originate in Denver, the Electric League of Colorado is co-operating with the financing and administration. Six bureaus are now being organized there.

Bureau Organized in Miami

In Miami, Field Representative Martin helped to organize a bureau of which I. Silverman was elected president.

Arrangements for an all-electric kitchen display and planning center in down-town Miami, under the supervision of a specialist, and for radio and newspaper campaigns, have been completed, reports R. B. Roberts, Jr., Florida Light & Power Co., regional director for Florida.

St. Petersburg, Fla. also has a complete kitchen financing by Florida Power Corp., sponsor of the city's bureau.

Portable type electric kitchen displays are used in the program for cooking schools and modernization meetings in Orlando, Fla., where activities are in charge of Mr. Clapp, of Florida Public Service.

15 Kitchens Sold in Knoxville

At Knoxville, Tenn., where dealers and Tennessee Public Service Co., have joined in the promotion program, 15 complete electric kitchens have been sold.

Seven dealers now have model kitchens here, and the number is expected to be doubled. Part of the program includes an all electric kitchen planning contest directed to schoolgirls.

The Philadelphia area, where D. E. Stultz, Potomac Edison Co., Hagerstown, Md. is regional director, has established a kitchen modernizing division of the Electrical Association of Philadelphia.

Working with builders, the division has opened the first of what is hoped to be a group of 36 model homes with all-electric kitchens.

Although nothing definite has been reported from Baltimore, Mr. Martin, of the Bureau headquarters, addressed

a meeting of 100 utilities' executives at the Maryland Utilities Convention in Baltimore May 1, and presented the modernizing program.

One hundred and fifty attended the organization meeting at Nashville, Tenn., where J. P. Lawrence, electrical dealer, was elected chairman, and E. P. Nixon, secretary.

Omaha Bureau Changes Name

In Omaha, Neb., the old refrigeration bureau has been changed over to the Electric Kitchen Modernizing Bureau. An extensive newspaper advertising campaign has been run.

Although there is no formal bureau in Lincoln, Neb., the Iowa-Nebraska Light & Power Co. has installed a model kitchen with attendant in charge, and a complete planning service is in effect. Local architects and builders are taking an active part in the program, reports R. E. Geppert, Nebraska Power Co., Omaha, regional director.

A traveling motor coach equipped with a public address system tells the modernization story in Scottsbluff, Neb. An all-electric kitchen has been opened by the Western Public Service Co. in cooperation with local organizations, and all-electric kitchens are also to be installed in the power company's principal offices.

Although no formal bureau has been established in Wichita, Kan., Kansas Gas & Electric Co. has established model kitchens in Wichita, Newton, El Dorado, and Pittsburgh. A dealer and a department store have also set up model kitchens.

This city has furthered the promotion with an electric kitchen week featured in the newspapers. This activity was reflected in the success of the complete planning service established in the power company's office where 40 requests for plans have been received, and 17 complete kitchens sold.

Iowa Public Service Co. in Sioux City, Iowa, is conducting an extensive educational activity with employees and dealers. It has established a planning service in cooperation with architects and building contractors in the city. Two complete kitchens have been sold, and many prospects secured, it was stated.

At Pittsburgh, E. W. Evans, sales promotion manager of Chiltree Electric Co. was appointed chairman of the bureau and C. F. Egli of West Penn Power Co., secretary. The Electric League of Pittsburgh plans to undertake a modernizing program as a part of its regular activities.

In the Washington area, where kitchen modernizing has for some time been an important activity in the electrical association, 1,400 complete electric kitchens have been installed. One hundred thousand blanks have been sent out inviting participation in a \$1,000 essay contest recently started.

Portland, Oregon's bureau is organized within the Electric Club of Portland. Portland General Electric Co. has been active in promoting kitchen modernizing for more than a year, reports say.

At Seattle, where A. C. McMicken is regional director, the promotion of the program has been coming from Puget Sound Power and Light Co. for more than a year, with dealers co-operating. Local bureaus and display of model kitchens are underway also in Beltingham, Bremerton, Olympia, Chehalis, and Wenatchee.

Newspaper and radio advertising is being used extensively in Salt Lake City, where without formal organization, utility and dealers are co-operating. Electric kitchens are in the several stores of Utah Light & Power Co.

L. A. Lewis, of Washington Water Power Co., Spokane, regional director, carries on dealer meetings in Spokane and in five districts near there with

the result that model kitchens have been established in every community of 3,000 or more population in the area served by the utility.

Puget Sound Power & Light Co. has established model kitchens in all offices in western Washington.

Dr. Allison is conducting a series of meetings in Oklahoma, Texas, Pennsylvania, and Virginia. Bernard Weadock, Jr., is scheduled to spend several weeks in the New England territory, to assist in organizing bureaus and furthering the modernization program there.

Clark Heads Westinghouse Kitchen Planning

EAST PITTSBURGH — Irving W. Clark was recently appointed manager of the kitchen planning section of Westinghouse Electric & Mfg. Co. by Reese Mills, manager of the range and water heater department.

Mr. Clark will continue to promote the sale and distribution of the all-electric kitchen, and in addition, will assume more research and laboratory work on various ramifications of kitchen planning.

Aided by his early experience as architect, cabinet designer, and salesman, Mr. Clark has been responsible for a number of planning improvements including the establishment of the three-center, four types of kitchen now accepted as a basis for planning, designing, and remodeling kitchens, according to Mr. Reese. He also introduced a new "yardstick" for measuring storage requirements for residences of varying sizes.

Two Westinghouse kitchen clinics have been conducted by Mr. Clark and he has appeared as guest speaker before meetings of architects, electrical engineers, merchandising executives, and home economists.

Delco motors



■ Delco Motors are designed and manufactured with infinite care. Every part of a Delco Motor must meet the high standards of precision and quality which have been set for it; every operation must be performed efficiently and accurately—even down to the last minute detail of assembly. Only by adhering strictly to this policy does Delco merit the continued confidence of the men who make, the men who sell, and the millions of people who use Delco-powered refrigerators, washers, ironers, oil burners and air conditioners.

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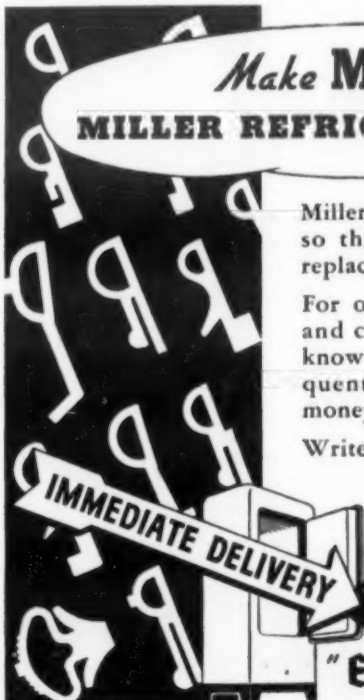
Miller has simplified refrigeration gaskets so that 20 types fit 80 per cent of all replacement needs.

For out-of-the-ordinary jobs other sizes and conformations are available. Let us know the models you service most frequently. Our experience can save you money by cutting stock costs.

Write for illustrated price list that shows how to make money with Miller Refrigerator Gaskets. If your local jobber cannot supply you, write direct. Miller Rubber Company, Inc., Akron, Ohio, U.S.A.

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"Engineers in Rubber"



Allison Tells Value Of National Selling Program to Utilities

ST. LOUIS—National Sales programs provide the most effective channel through which to increase public appreciation and understanding of the electric power industry. Dr. G. W. Allison field representative of Edison Electric Institute, told delegates to the Institute's fourth annual convention here last week.

The electric light and power business is by nature one that is not easily understood, since its product and service are for the most part invisible, the speaker said. This places upon the industry more than an ordinary responsibility for cultivating public understanding.

Objectives Are the Same

"The objective of all groups concerned—the electric using public, the dealers in electrical devices, and the electrical companies themselves—are identical," Dr. Allison said. "The public wants the service, and they are interested in increasing that service—but they want it at a fair and just cost."

"Suppliers of current consuming devices want volume, and they want that volume at a minimum of sales cost."

"Operating companies want a load that will justify the service they render, and they want public relations that will make their positions safe and secure."

Understanding Brings Appreciation

"A clear, factual understanding, by these three groups, of the electrical industry and the service it renders will create an appreciation of this industry which will give all three classes the fulfillment of their desires. Lack of understanding is a fertile soil in which the seeds of mistrust and discontent germinate quickly into rank injustice and rash action."

"The electrical industry is one of the most vital industries in this country. Few industries touch life so vitally. Recent floods proved this to the affected communities beyond any question. There are few industries that can match the service record of this industry. A progressive story of improved services, and a continuous story of the reduction of the costs of that service. Today there are few if any products from raw material to finished product in consumer use that compare with electricity in efficiency and cost."

Good Story to Tell

"This industry has one of the finest of stories to tell. And it must tell it—for the public is hungry for the facts. If the public knew the facts they would appreciate this industry."

Leonard Rewards Its Veterans



George W. Mason, president, Leonard Refrigerator Co., presents Bob Granstra with a gold watch for 45 years of service. Sixty oldtimers in all, whose combined service records totaled 16 centuries, received tokens of the company's appreciation at a ceremony in Grand Rapids recently.

and with that appreciation would arise a rebellion against the agitator and the libelous politician. The present vogue of attack upon this industry would not be popular. And, unpopular causes do not have many ardent exponents.

National Sales Program

"How are we to create this better understanding? National sales programs are one big answer. National sales programs have proved their worth. They have brought better understanding to the public, to the suppliers, and to the operating companies. They have increased public use of the service; they have increased the volume of sales for suppliers; and they have built up the load for the operating companies."

"Anyone who has participated in a local cooperative sales program knows of its value. In contrast with local sales programs a national sales program increases the value of the local activity, stimulates local action beyond local possibilities, and renders an industry benefit not possible through local activity."

"A national sales program gives the industry a theme song, a uniform sales message. That message appears

in the national advertising and the local advertising; it is seen on bill boards, heard on the radio, seen in dealers' windows and stores, and carried by all salesmen. When every one is saying the same thing, and saying it at the same time the value of advertising dollars are increased, the effectiveness of sales messages are increased, and the volume of sales are increased."

Cites Refrigeration Bureau

"There are two splendid illustrations of this fact. The Electric Refrigeration Bureau, and Better Light for Better Sight. Both of these activities were highly cooperative. They had uniform messages."

"In the refrigeration program, the emphasis was placed upon the need for refrigeration. That was the theme song. Everybody told that one story. The unanimous agreement of the industry and the continued repetition of that message made its favorable impression upon the public. Electric refrigerators sold in increasing numbers in spite of the depression."

'Better Light for Better Sight'

"Better Light for Better Sight is another outstanding example. Light is the first thing this industry gave the public. We never had to sell light. And we cannot brag too much about the lighting job we did. Right in the depths of this passing depression Better Light for Better Sight was launched. It gave the whole industry another theme song—a uniform sales message. It was a message that every one could and did tell. It was a story of meeting a human need, conserving eye sight, and increasing human efficiency. The unanimous agreement of the industry again captured the public attention. The public increased its use of service, the lamp manufacturers increased their sales, and the operating companies built up their load."

"National sales programs can be the vehicle through which we, as an industry, learn the facts of our service, and through which we impart these facts to the public. A sales program must center its thinking around the idea of service. Service, its efficiency and its cost, is the meat and core of the entire proposition in which every one is interested. A sales program that does not justify its approach to the public with facts loses a tremendous opportunity."

Would Solve Industry Problems

"The facts of this industry, facts that explain and clarify services and their costs, represent the prime medium of making sales. National sales programs are the logical media through which these facts can and should be presented. The story of service and its costs is the uniform message for the industry. The facts of that service and its cost are the responsibility of each local company to develop and present to its communities. With the presentation of these facts goes a cooperative selling program. Through such activity there is created better understanding among all units of this industry."

"National sales programs offer this industry the solution of most of its problems. We can sell our way out of our troubles. We can sell our way into an ability to pay dividends. We can sell our way into the good graces of an understanding and appreciative public, and when that is done we will have fought a good fight and we will have kept the faith."

Kitchen Modernization Offers Utilities Best Method of Building Load, Whitwell Tells Edison Institute

(Continued from Page 1, Column 1)

ceeded over the years at a constantly accelerating tempo, until today, in many parts of the United States, amazing accomplishments, particularly in residential load building, are being witnessed.

"But something more is needed—something still more greatly opposed to that doctrine of scarcity which is typical of those governmental policies which are responsible for many of the difficulties which beset us, and for which remedies must be found."

Replace Old with New

"I offer you the Kitchen Modernizing Program as a method of replacing the old with the new; of putting to work the tremendous advances in technology of electric kitchen appliances; of increasing employment by creating more jobs through making existing electrical goods and services constantly better, and of pioneering still newer things to be built tomorrow. The Kitchen Modernizing Program will not only serve progress but will serve our customers, ourselves, and the whole of America."

"There is nothing particularly new about electric kitchens. I remember well when, 15 years or so ago, as a gas man on the Pacific Coast, my chief worry was to compete with the all-electric kitchen. The idea was well started then. The novelty of the present activity lies in concerted action by the industry as a whole toward accelerating the acceptance by the public of the modern electric kitchen. It provides a new national approach to the selling of electrical kitchen appliances."

Sell Planned Kitchen

Purpose of the program, Mr. Whitwell explained, is to sell a planned kitchen to the housewife, thus giving the industry a new tool for more rapid, and perhaps volume, selling of ranges, water heaters, refrigerators, dish washers, and other kindred devices. It may be operated in either of two ways: (1) The entire modernization may be carried out all at once or, (2) by means of a definite plan as a goal towards which to work, the householder may proceed step by step.

"The first method, namely the ensemble selling of a kitchen, will doubtless have limited application," he said. "There is no limit to the second method. It calls, first, for the electric refrigerator; then, the electric range or water heater or both; then, perhaps, the cabinet work, lighting, and decorative effects; then the miscellaneous other appliances; but every move will be according to a plan and the result will be a modern step-saving kitchen. Always the housewife has before her an unreach goal and money will not be diverted into other merchandising channels from the job of reaching it."

"The logic of this method of procedure has best been demonstrated by the plumbing supply business."

Remember the days of the old tin tub in the bathroom? It was an event when the old tub was replaced by the cast-iron one mounted on four legs. That was an individual sale. But plumbers learned rapidly and long since began selling bathrooms as a unit; equipment matching; walls and floors conforming to a color scheme. This is the outstanding example of ensemble selling. The bathroom is a unit—not a collection of different pieces of equipment.

Plan Comes First

"The National Kitchen Modernizing Program is endeavoring to apply the same line of sales approach to the kitchen. Realizing that a complete remodeling job is more expensive than many people can readily and immediately afford, the program stresses the importance of first establishing a plan, then proceeding along the plan until the desired results have been achieved."

Three general markets immediately present themselves as those in which the heavy load-building appliances can be sold readily by putting into active use the slogan "Modernize—Electrify Your Kitchen," Mr. Whitwell said.

Three Markets for Kitchens

"First is the individual home owner, who, now for the first time in many months, has some money to spend and cannot only be persuaded to spend it for immediate improvement in the kitchen but also can be sold the idea of planning the expenditure of additional money, as available, for the completion of kitchen modernization in accordance with a definite procedure. Usually this buyer is the housewife. Usually she is a home owner. In some instances she may be an immediate home builder."

"The second kitchen modernizing outlet is represented by blocks or groups of homes which, built six or more years ago as a building development, have found their way back into the hands of insurance or trust companies, have been rented by these agencies for as long a period as the property was in sufficiently good condition to be rented, and now must be thoroughly remodeled before offering them for sale in the nationally improving real estate market. You will find the insurance companies ready and eager to receive any help along the line of kitchen planning and modernizing. I know this to be true because of my personal experience in this connection during the last 18 months."

"The third market is a vast one. It is steadily growing, can be sold, but, if there is delay, will slip away without our realizing that it has been within our grasp and gone. I refer to the thousands of so-called 'operation building' homes which are springing up like mushrooms in almost every section of the United States."

"Of the fact that these operation (Concluded on Page 9, Column 1)

CONDENSERS • EVAPORATORS

FOR EVERY MODERN APPLICATION

Quality and efficiency are the outstanding features of Long condensers and evaporators. Condenser units of tube and flat continuous fin construction, in copper and steel, give maximum heat dissipation per pound of material used, and collect less dust. Available in both domestic and commercial units for electric refrigeration and air conditioning applications.

LONG MANUFACTURING DIVISION
BORG-WARNER CORPORATION

DETROIT, MICHIGAN
WINDSOR, CANADA

LONG

Technical Precision in Each Manufacturing Operation



MANY times, the smooth, effortless performance of a Copeland Commercial Unit, has been aptly compared with that of a super-built fine motor car engine. This remarkable smoothness is the direct result of the great technical precision employed as standard practice in the manufacturing of each Copeland compressor part. Here is built-in fine quality that means longer life, years of trouble-free, economical operation and greater owner-satisfaction. A few territories are still available. Write.

COPELAND REFRIGERATION CORPORATION
Manufacturers of a complete line of Household and Commercial Refrigeration
Holden Ave. at Lincoln . . . DETROIT, MICH.

Copeland

DEPENDABLE Electric REFRIGERATION

Kitchen Modernizing Program Explained To Utility Heads

(Concluded from Page 8, Column 5)

builders can be sold on modern electric kitchens, even when the houses that they are erecting sell for as little as five or six thousand dollars, there is ample evidence. I am told that in Washington, D. C., during the first year of effort, modern electric kitchens went into 1,400 such homes. I know that in the last two weeks modern kitchens have been contracted for in nine building operations in the city of Philadelphia. On a single day, 181 ranges were bought for such homes. Others are under negotiation. The job is surprisingly easy. I suggest that you try it.

"Repairs and remodeling and building have been delayed so long that now that money is more plentiful, there is a rush to get these things done. It has been estimated that this year alone will see \$5,000,000 spent on kitchen modernizing. A good proportion of this sum will be spent for appliances; the balance for cabinets, plumbing, wall and floor coverings. We feel very strongly that the timing of this activity could not be better, coming as it does on the rising tide of building activity."

Operation of Kitchen Program

Mr. Whitwell next explained the operation of the National Kitchen Modernizing Program activity as conducted by the Kitchen Modernizing Bureau of the association.

An executive committee composed of representatives of manufacturers, utilities, and trade associations has charge of matters of policy; regional directors have been appointed and are functioning in all sections of the country; a planning committee has the responsibility for publicity and the outlining of campaign plans. The entire activity is under the direction of a paid staff located at E.E.I. headquarters and including traveling representatives, who, so far, have visited 60 cities in 26 states.

Acts as Coordinator of Plans

"But the National Bureau exerts and can exert only a guiding influence, acting as a coordinator of plans so that local bureaus or activities may gain maximum benefit from a program that is nation-wide.

"Just how individual localities proceed is entirely up to them. There are many ways of doing this job and no one way will work in all sections of this country. There is always one best way for each community to proceed and that way is left to the community to determine.

"In some cases a utility-sponsored activity is best, whereas in other regions such an arrangement might produce unfavorable trade relations so that it would be a job for the local Electric League. Or, if there is no league, a committee of interested individuals may function as the sponsor. There is a wide range of choice in such matters and no attempt is being made to set a pattern to which all cloth must be cut. Suffice it to say that this activity can succeed as a national endeavor only if it is regarded as the summation of many completely autonomous local programs.

32 Active Local Bureaus

"There are at present 32 local bureaus in active operation in as many cities, and 15 more definitely to be formed, some of which by now are probably in operation. Yet the activity is less than six months old.

"There have been reported 84 electric kitchen displays in 28 cities and I believe we have only started.

"While no universal procedure has been set up, certain steps suggested in the National Kitchen Modernizing Plan Book have been followed by most of the bureaus now operating. Briefly, those steps are as follows:

"1—The local plan of operation should be set down in written form, so that everyone concerned may be specifically informed.

"2—An information bureau, where full particulars on modernizing equipment, prices, terms, etc., can be obtained, should be established.

"3—There should be organized a kitchen planning service—local, if possible, but, if not, by agreement with a manufacturer, magazine, or other source.

"4—One or more model electric kitchens should be open to the public.

"5—There should be a definite and liberal advertising activity to further the local modernizing program and to inform the public where information and assistance can be secured.

"6—Some agency should be definitely responsible for the program.

Methods of Promotion

"Planning and essay contests, architects' contests, discussions of kitchen planning at cooking schools, and the extensive use of radio are some of the means that are being employed. Active promotion is directed toward builders.

"The part that we, representing the

utilities, can play is an extremely important one. Quite naturally, the local utility will be the hub around which the activity moves. This is true regardless of the medium through which the program is presented. Here are several suggestions for utility activity that it has been demonstrated will encourage dealer participation:

"1—Act as a guide to dealers' activities, taking the lead in selling them on a sustained kitchen selling program and showing them how they profit from it.

"2—Do a generous amount of promotional advertising which will encourage dealers to do product advertising.

"3—Make a sales manual available to all participating dealers. The kitchen planning manual which has just been released from headquarters will serve this purpose.

"4—Promote a local direct-by-mail campaign to a selected list of prospects to be done by either the local bureau or by the utility.

"5—Act as the coordinator in securing the participation of the other local interests such as plumbers, painters, hardware, furniture and department stores, cabinet and tile dealers, as well as wall covering and floor covering concerns.

"6—Sell your own employees on kitchen modernizing, encouraging them to proceed on the step-by-step process to the ultimate planned kitchen.

"7—See that dealers are kept informed as to all material that is made available by headquarters and that they receive what advertising and display material they may need.

"8—Encourage dealers to install model electric kitchens and arrange for demonstrations to be held by them."

Ties to Indicate Status Of Salesmen in June Contest of Merriam

SCHENECTADY—Ties will indicate the progress of each salesman of dealerships operating under the A. Wayne Merriam, Inc., General Electric distributor here, in attending his assigned quota during the June sales contest.

Each participant has a fixed quota for the month. Charting quota fulfillment by colors, a black tie signifies less than 25%; green, 25%; tan, 50%; and maroon, 100%. Dealer sales determine the color of the ties worn by the territory managers.

Greenwood Discredits Government's Claims Of Improving Power Selling Methods

ST. LOUIS—In spite of the claims of governmental agencies to being the originator of modern utility methods of merchandising, electric sales development on a large scale began 30 years ago—and not three years ago, as many in administration circles would have the public believe—C. E. Greenwood, commercial director of Edison Electric Institute, declared in a speech at the Institute's fourth annual convention which was held here last week.

All Duplicated Previously

"It is significant," Mr. Greenwood said, "that in scanning every inch of the government 'yardstick', we do not find one sales accomplishment in three years that has not been duplicated by some private utility in the past, and under more exacting conditions.

"Employee selling, cooperation with dealers, and intensive selling by the utilities were not inspired by the goading of government competition, but were the start of sound economic

business development a score and more years ago."

Mr. Greenwood paid tribute to the valuable service which the electric refrigerator had rendered the utility industry as a load builder, particularly in the period since 1926.

Effect of Refrigeration Bureau

"Up to 1926," he said, "150,000 had been manufactured, including exports, and had not the World War dawned upon us, development would have been much more rapid.

"The progressive step followed with the organization of the Electric Refrigeration Bureau. It functioned for three years, making a record unsurpassed in promotion and selling. Again the mobilization of utilities, manufacturers, and selected groups . . . produced a background for an amazing sales volume of electric refrigerators. The momentum created carried sales forward during the recent years of economic upheaval, despite reverses in practically all other industries."

TELEDIAL IS HERE!

(PATENT PENDING)

Distributors, Dealers Call Grunow's
NEW TELEDIAL Hottest Radio
Sensation in Years!



These pictures were snapped at the convention where Grunow introduced Teledial to its dealers and distributors. Many distributors asked us to double their June allotments when they saw this amazing advancement! You'll see why when you get the full Teledial story. Write for it today.



TELEDIAL is here and automatic radio tuning, that brings in stations with a flick of a finger, is a reality! And with TELEDIAL come half a dozen features, in the new 1937 Grunow radios, second only to TELEDIAL itself in drama—sensation—selling value.

New "violin shape" cabinets that utterly ban cabinet resonance! The new Aladdin Color-Flash Dial, with clock-type tuning in that gives twelve times more accuracy in tuning short-wave stations! New "Tone tested" Resonator, with a new kind of utterly pure tone; Automatic Frequency Control that makes detuning impossible.

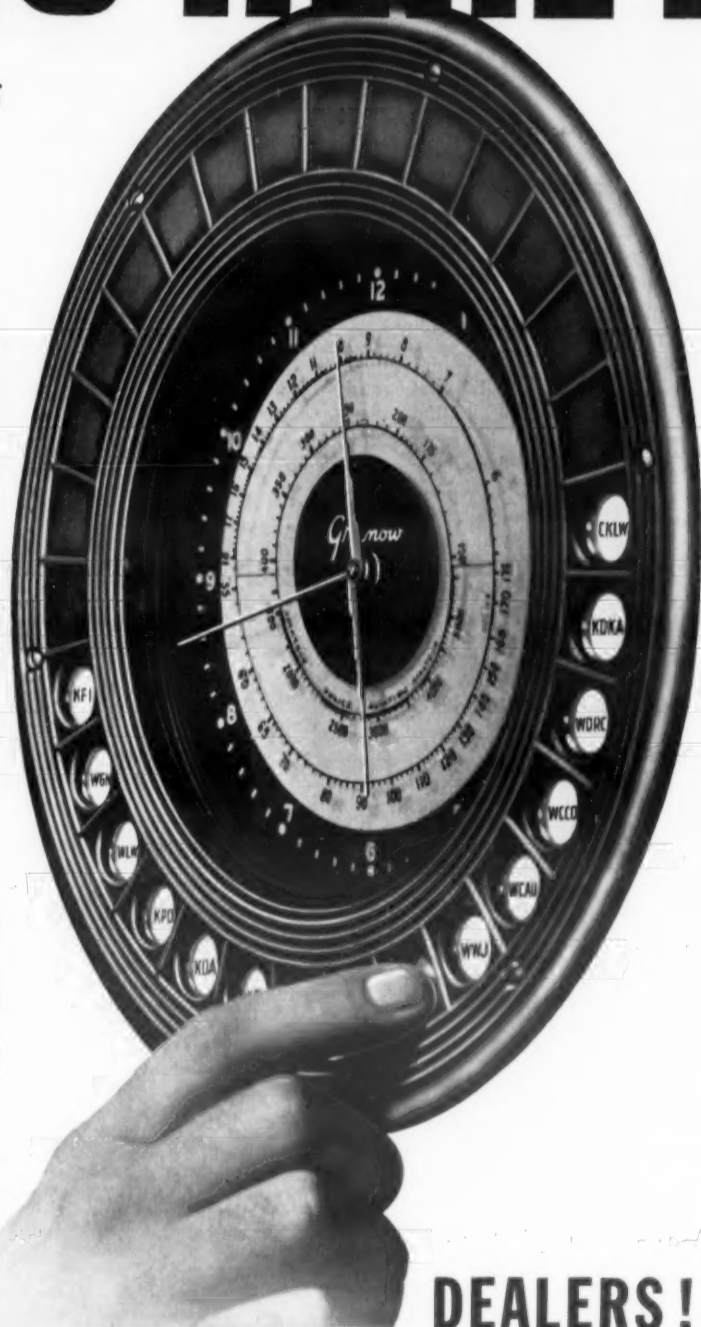
Features like these really demonstrate! We don't have to tell you how they will swell floor traffic and sales. Why not get the whole story. Write, and let us put you in touch with your nearest Grunow distributor today. Act at once.

GENERAL HOUSEHOLD UTILITIES CO.
CHICAGO, ILLINOIS — MARION, INDIANA

Manufacturers of Grunow Super-Safe Carrene Refrigerator
Grunow Household Radios · Grunow Automobile Radios

Grunow

ALL-WAVE RADIO FOR 1937



DEALERS!

WRITE NOW! BE STOCKED
WHEN TELEDIAL
ADS APPEAR!

USE THIS COUPON

General Household Utilities Corporation,
2638 North Pulaski Road, Chicago, Ill.

Send me the full facts about the new TELEDIAL today and put me in touch with the nearest Grunow distributor today.

Name

Address

Town State

ELECTRIC REFRIGERATION NEWS

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Member, Audit Bureau of Circulations
Member, Associated Business Papers

VOL. 18, No. 6, SERIAL NO. 577
JUNE 10, 1936

Commercial Dealers Qualified to Sell Air Conditioning

APPEARING in a recent issue of a national magazine is an advertisement of a nationally known manufacturer who has branched into the air-conditioning field. In a corner of the full-page advertisement is a block of copy seeking to interest "men of character and responsibility" in a distributor's franchise for air-conditioning equipment.

As has been reiterated many times on this page, it is not our policy to try to tell the industry, or any one company, how its business should be operated. However, the editorial writers of ELECTRIC REFRIGERATION NEWS consider it proper, and possibly of some value, to discuss programs embarked upon by the industry, or some one company, in the light of business experience or history.

Business history shows that once it is demonstrated that a comparatively new industry, like air conditioning, holds out promise of a great market, it will attract capital from "men of responsibility and character" in all walks of life—many of whom haven't had the remotest kind of connection with the type of activity involved in the new industry.

There may have been instances in which this proved advantageous. Without such new capital the distribution of some new products might have proceeded too slowly. And the distribution of a new product doesn't present too complex a problem where it can be merchandised from behind a counter or off a showroom floor.

But this air-conditioning business has a background. It is founded on principles established in the fields of heating and ventilating, and electric refrigeration. There are individuals and concerns now active whose experience in these fields goes back many years.

Then too, the sale of air-conditioning equipment is a "specialty selling" job, wherein the vendor sells a "guaranteed result," as contrasted to the merchandising of a product in which the customer makes a selection on the basis of his own tastes.

Practically all sales of commercial refrigeration equipment are consummated on a "specialty selling" basis. The commercial refrigeration salesman asserts that his equipment will create and maintain certain conditions of temperature and humidity that are

best for the prospect's products that need preservation by cold, much as the air conditioning salesman will declare that his equipment will produce optimum conditions for the comfort and well-being of humans.

Commercial refrigeration salesmen have developed such "specialty selling" methods to a high degree, going beyond merely telling the prospect what their equipment will do, by interpreting what the "guaranteed result" will mean to the prospect in terms of added profits or convenience.

With this picture of the experience and methods of the commercial refrigeration industry, it would seem fairly obvious that air-conditioning manufacturers should cultivate the commercial refrigeration dealer as one of the best possible outlets for the sales of equipment. Certainly the manufacturer could find no other type of dealer who would need less training in the engineering, selling, and installation of air-conditioning equipment.

We're also inclined to believe that the industry will enjoy a more healthy growth if dealers are selected who have learned that to keep on selling "guaranteed results" it is necessary to produce such results consistently. Commercial refrigeration dealers have learned this lesson.

This suggestion is offered because the air-conditioning industry is particularly vulnerable to public opinion right at this period of its development. Overstatements on the part of salesmen, and incorrectly engineered installations, will start "word of mouth" campaigns that may incline the public to shy away from buying air conditioning in the belief that it is still in the stage of very early development. This will be regrettable in that the fault will not be that of the product, but rather of the way in which it has been sold and installed.

Letters

Censured? Yes. Censored? No.

General Household Utilities Co.
Chicago, Ill.

June 8, 1936.

Publisher:

Your recent editorial of censure directed at our advertising has been called to my attention.

I have no desire to tell you how to run your business, and I am not distressed by the "bad boy" implication in the words "Grunow is at it again." But I feel that you are assuming an untenable position in setting yourself up as a censor of competitive advertising copy. No one, to my knowledge, has attempted to do this in other industries, and some of the advertising, in my opinion, presents competitive claims and implications less solidly based on fact than ours.

A glance at the advertising of our competitors leaves me with the strong impression that most of them are advertising "gadgets." To this type of advertising we take exception. We strongly feel that every product must stand four square on its merits and that the advertising of the product should not be "smoked screened" by directing the public's attention to mere gadgets.

We are willing to rest our case upon the sound judgment of the American people. We have produced an electric refrigerator of superior quality which cannot explode, leak noxious fumes, nor cause fire. We propose, and definitely think it ethical to acquaint the public with the fundamental advantages of this product. More than 51% of the money spent by citizens of this country is expended directly for protection and security.

You have created a controversy by your recent editorial and I feel sure that your spirit of fair play will assure your giving equal prominence to this letter, which you have my permission to publish.

WM. C. GRUNOW, president.

Answer: Please note the following definitions:
"Censure, v.—Judgment, opinion. Expression of disapprobation or condemnation.

"Censor, n.—An official or military officer charged in time of war with examining correspondence, news dispatches, speeches, etc., in order to suppress or delete whatever, if communicated, might aid the enemy or injure military or civilian discipline or morale."

The editorial entitled "The Fear Appeal in Advertising" on page 10 of the May 27 issue contained an expression of opinion regarding the Grunow advertisement published on page 9 of the same issue. We believe that we have a right to express our opinion regarding anything published in the columns of this paper.

Please note, however, that we did not set ourselves up as a "censor of competitive advertising copy." The advertisement was published exactly as it was furnished to us.

While we heartily disagree with you and your agency regarding what is good advertising, we have not denied you the privilege of using the columns of this paper to present your proposition to the industry according to your own ideas.

Feature Safety? Yes. Horror Copy? No.

Cochran & St. John, Ltd.
Carrier Weathermakers
952 Mission St., San Francisco, Calif.
June 2, 1936.

Editor:

Why pick on Grunow for his advertising for featuring safe refrigerant used by him appearing in your May 27 issue on page nine, when on page 11, the same thing is featured in about the same size ad by the manufacturers of Freon.

I hold no brief for Grunow's advertisement, as I think it is very detrimental to the whole industry, yet I don't believe in making fish of one and fowl of another.

I thoroughly agree with what you have to say in your editorial of the same issue and am sure that only one benefited by such advertising is the ice man, and it is a cinch that he will take advantage of and profit by this sort of advertising.

L. W. COCHRAN.

P.S. We do not handle Grunow or any other make of household refrigerators.

Answer: There is a vast difference between an advertisement which emphasizes the safety features of the advertiser's product and one which dramatically exaggerates the element of danger in competitor's products.

It is this over-emphasis, or dramatic exaggeration, which has created so much resentment in the industry toward Grunow advertising and which, we believe, will do the Grunow company more harm than good.

The publication of the recent Grunow advertisement has already resulted in expressions of resentment towards the News and a notice of cancellation of advertising from one company. We know from past experience that this controversy may cost us thousands of dollars worth of advertising business.

About a year ago we published an editorial on the subject of Grunow advertising which resulted in the cancellation of advertising schedules by five large manufacturers. We still believe that those advertisers were short-sighted in taking such action since it was obviously calculated to weaken the editorial integrity of the paper.

Thus, by publishing the Grunow advertisements we may again suffer a loss of business from other customers, but if we refuse the Grunow advertisements we might lose the confidence of our subscribers because of a suspicion that the paper is subject to the dictation of certain advertisers.

Very frankly we do not relish a situation which calls for a choice between: (1) retaining the favor of advertisers, and (2) retaining the confidence of subscribers, but if that choice becomes necessary, there is only one answer: The News will maintain its integrity regardless of consequences.

House Organ? No. Subsidized? No.

J. Geo. Fischer & Sons, Inc.
Grunow Distributors
Saginaw, Mich.

June 2, 1936.

Editor:

For quite a number of years, I have looked to the ELECTRIC REFRIGERATION NEWS in admiration as an unbiased paper of the trade, but of late it appears to have become the house organ of several large manufacturers.

In looking over your editorial in the last issue condemning Grunow for their method of advertising, I wish to state that, after 17 years' experience in this business during which time I worked for some of the various companies for whom you now operate as a house organ, Grunow does not make their advertising any where near strong enough on their safety feature.

I have seen plenty of damage done

by domestic boxes which have been recently manufactured and also those that are several years old. You forget in your criticism that the boxes being sold today will be old boxes in a few years and that the same trouble can happen to them that has happened to their predecessors.

You are also very inconsistent in your statement regarding advertising safety as you had a safety advertisement on Freon on one of the pages of the issue and have carried them consistently for some time.

If everyone took the attitude that you have taken in your paper, there would be no incentive for improvement and refinement of any product. It will soon be that those in our business who have an open mind for advancement will have to look elsewhere for information that is not subsidized by those who have tried to dominate this business.

Your criticism of Grunow's advertising offended us as much as Grunow's advertising has appeared to offend other manufacturers whom Grunow has out-distanced in progressiveness.

G. E. OSBORN.

Answer: Most of the manufacturers of electric refrigerators publish "house organs" which are distributed free. The News goes only to subscribers who voluntarily pay for the paper.

The News is not "subsidized" by anybody. It is published by an independent company which was founded 10 years ago by the present publisher (who owns over 99% of the stock) and who values his spirit of independence as a priceless possession.

Other Patents Owned by Auditorium Corp.

B. F. Sturtevant Co.
Hyde Park, Boston, Mass.
June 3, 1936.

Publisher:

One of our office managers has sent a clipping to me, which, it would appear, had been published in a recent issue of your splendid periodical. The name does not appear on the clipping, but it is headed "Vol. 18, No. 1, Serial No. 372, May 6, 1936," and the article is headed "Another Threat of Patent Monopoly Is Banished." I am not sure, but the type indicates that it was clipped from your publication.

If it was, I am wondering where whoever wrote this article could have possibly obtained the information that prompted the statement "With that decision it appears that air conditioning becomes a wide-open industry"; the article referring, of course, to the Court of Appeals, Second Circuit decision in the Auditorium vs. Warner suit.

With respect to the Lewis and Fleisher patents; we own the Fleisher patents in question, although we had assigned "comfort" rights to the Auditorium Conditioning Corp. Carrier Corp. owns the Lewis patents, but they assigned the "comfort" rights to Auditorium.

The writer of the article could not have appreciated the following facts:

1—The Lewis and Fleisher patents referred to are only two or three of a large number of patents that the Auditorium Conditioning Corp. controls, so far as "comfort" rights are concerned. These patents the Auditoriums Conditioning Corp. intends to protect.

2—The decision in question applies only to the Second District, and not to any other District in the United States or foreign countries.

3—Not only we, but others, own many valuable, and we believe valid patents relating to air conditioning, some of which are going to be adjudicated. We alone own 26 or 27 patents covering the cooling and conditioning of moving vehicles.

We write as above because you may wish to correct the false impression that we are sure would result from the article in question; and prompt many not familiar with the patents to infringe, and, thereby, render themselves liable for damages. Your article would also seem to indicate that you did not believe in patents.

Is not all the research, inventive genius, effort, and expense that has resulted in patents being obtained, entitled to the protection and recovery, as in other lines of endeavor?

Also, do you appreciate that if it had not been for all this research, effort, and expense incurred by others and ourselves, that the developments in the industry and the use for refrigeration would not have progressed to any such extent, or perhaps even be available to the public at this time? We, ourselves, started the first effort in 1910, and actually sold and installed complete cooling and conditioning systems; and our interest in the subject has continued from that date, resulting in tremendous effort and expense.

E. B. FREEMAN, President.

Answer: Certainly, we believe in patents but we have no childish faith that all patents are good. Our comment pertained to those Auditorium patents which were declared invalid by the court.

We Made No Test

The Burnham City Hospital
310 East Springfield Ave.
Champaign, Ill.
June 1, 1936.

Gentlemen:

Recently as a special courtesy I was shown one of your research sheets and reports on electrical refrigeration. I want an honest reply so shall be honest in my question by telling you that in my contact with many salesmen that I have lost to a considerable degree, my confidence in the accuracy of many of these confidential reports so called as most salesmen resort to something on this order as a last appeal.

What I should very much like for you to tell me, is whether or not the tests reported by you to Sears, Roebuck & Co. in which you state that the super six Coldspot is superior to all others in construction, low cost operation, durability, etc., etc.; were they all run under capable supervision, on boxes of the latest make of the various manufacturers, and under identical conditions? By this I mean, comparing the 1936 Coldspot with the 1936 merchandise of G-E, Westinghouse, Norge, and others.

In other words if you were the prospective purchaser would you, after making the tests that you have buy a 1936 Coldspot believing it to be a better investment dollar for dollar than the other leading makes?

ROY E. WOLCOTT.

Answer: We have made no test of the Coldspot, or any other refrigerator, and have issued no such report to Sears Roebuck.

South African Firm Seeks Dealership

Daniels & Co.
Dairy Machinery and Supplies
Refrigerating Machinery and Ice
Cream Equipment
146, Pritchard Street
Johannesburg
May 6, 1936

Gentlemen:

Enclosed please find money order for seventeen shillings (17/-), covering one year's subscription and postage for your valued weekly paper "ELECTRIC REFRIGERATION NEWS," which we trust you will commence posting to us on receipt of same.

Judging from the last Copy, that the writer has carried with him from his last visit to the United States, it seems that you are in close contact with the frigidaire trade.

Since we are interested in this line of business, we shall be grateful, if you will put us in touch with frigidaire manufacturers of repute, and strong financial standing, with a view of representing them in the Union of South Africa.

For your guidance, we might add, that we would only consider a product of unimpeachable construction, and one that is always kept abreast with the demands of modern requirements.

Leaving with confidence the choice of the Firm in your capable hands, we thank you in anticipation for your kind service to us.

MANAGER.

Correction in Address

The British Thermostat Co., Ltd.
Makers of Scientific Instruments
Teddington Works
Windmill Road
Sunbury, Middlesex

Editor:

We were most interested to read the article published in the ELECTRIC REFRIGERATION NEWS of May 6, describing George Taubeneck's visit to Melbourne.

He was kind enough, in several instances, to make reference to our instruments and control gear, and while appreciating this, we would courteously submit that our address is as shown on this letter heading and not at Slough or Teddington, as stated on more than one occasion.

Thanking you and wishing your paper the success which it so greatly deserves.

W. A. PAYNE

Slow Delivery of News to Evansville

Servel, Inc.
Commercial Refrigeration Division
Evansville, Ind.
June 1, 1936.

Editor:

We are trying to figure out why our copies of the News do not reach us in Evansville until the Monday after publication; whereas our Export Department in New York seems to receive them on Thursday or Friday. The Post Office Department assures us that they have three over-night mail trains to and from Detroit each day, yet even first class mail seems to require two or three days in transit.

I would appreciate your advising us if this letter is slow in reaching you as we are making sure that it definitely goes into the Post Office early this evening.

W. J. AULESBROOK, Asst. Sales Mgr.

Air Conditioning

Michel Tells Utility Executives How They Can Quicken Air-Conditioning Sales Pace; Traces Development of Market in St. Louis

(Continued from Page 1, Column 4)

refrigeration, which, after a brief promotional stage, leaped into public favor so suddenly as to take even the most optimistic by surprise.

"It is hardly 10 years ago that my own company agreed to display a domestic electric refrigerator on our merchandising floor, but refused to sell the gadget to the public. Today we have a refrigerator saturation well in excess of 50%.

"We learned a lesson from that experience, and when in 1931 a satisfactory self-contained room cooler was not available, we set up our own experimental laboratory, assembled parts and were prepared to go ahead with the building of such apparatus, for sale to our customers—a plan abandoned when a suitable unit was placed on the market well ahead of schedule.

Added 5,000 Kw. in 12 Months

"Our confidence in air conditioning has been rewarded. During the past twelve months, we have picked up more than 5,000 kilowatts of air conditioning load, and that in a period when 5,000 kilowatt loads were not too common.

"Self-contained air conditioning units are available at prices relatively lower than were refrigerator prices at a corresponding stage of the refrigerator's acceptance. That in itself indicates that air conditioning is no longer a mere potentiality. It is a reality in a relatively advanced stage of acceptance.

"The whole range of our experience with domestic appliances is applicable; so, too, is the promotion that has been successful in the commercial lighting and power fields. It calls for the selling of personal comfort and well-being, and it will respond to the appeal of trade stimulation. It can be sold in terms of increased industrial efficiency, which has long been the keynote of our industrial power sales.

Has Reached Ready-Made Stage

"But summer air conditioning has one advantage possessed by few of its predecessors in the electrical field. It is not being sold to supplant some less effective means to the same end, as were most of the appliances whose popularity we have helped to create. It is a new service to humanity, a contribution to the comfort and well-being of those who make use of it."

Air conditioning has emerged from the custom-built to the ready-made stage, the speaker said. In the beginning it was a part of the building

industry. Each job was designed for a specific purpose and the equipment for each was assembled on the ground. Then, as applications were made to comparable structures, standardization became practical and today even the large installations are made up of standard factory-built units.

Help of Self-Contained Unit

"The self-contained unit developed since 1932 completed the transformation of air conditioning into a business which obtains a great part of its volume from the sale of standard factory-made products. It now has taken its place as a merchandising business," he stated.

"The market is not confined to any single class of customer. Homes, stores and factories alike are prospects. The domestic customer weighs the cost against the benefits of personal comfort and health. The store and restaurant justify the investment on the basis of increased patronage, while the factory pays for it through increased productive efficiency and quality of product.

"Finally, we are not greatly restricted to any particular income level. Consider again the close analogy with the electric refrigerator, which has gained saturations well over 50% by finding users in almost every income bracket. The air conditioning field is a broad and open one."

Consider Local Conditions

The setup that will prove most effective in a given locality requires careful consideration of local conditions, Mr. Michel said. If retail outlets capable of doing the merchandising job are not established, and if local capital is not available to establish them, then the utility, in addition to the promotion job, will have to merchandise equipment in order to give the necessary impetus to the business. Local conditions must also determine whether the utility confines itself to sales of self-contained units, or enters the border field of selling also the larger jobs, involving, as it does, dealings with many branches of the building trades industry.

In territories where density of prospects is low, such a plan has attractive possibilities. Often in metropolitan areas substantial progress has been made in the promotion of large installations, but the sale of small equipment has lagged. Here, the utility can assume leadership by merchandising such equipment and proving through actual demonstration that there is a market for it.

Classes Selling Products

"As early as 1930, two classes of organizations were active in selling air conditioning," he went on. "One class consisted of merchandising outlets interested in small equipment; the other of engineering organizations interested primarily in the large jobs."

"By shouldering a part of the sales burden, the utility gained the cooperation of each of these; and by being impartial as to makes, interested only in sound standards and a satisfactory job, confidence on the part of the public, as well as the vendors, was retained. As the field grew, additional firms entered the business, were welcomed and assisted wherever possible.

Conditions Shape Policies

"Such experiences have shaped the policy now followed by many utility companies. Where conditions change, these policies change; but whether the utility merchandises equipment or not, a sales job has to be done. Air conditioning must find acceptance among the utility's customers, and in promoting this acceptance, up to date no satisfactory substitute has been found for the utility. Where the utility is doing a real constructive job in this respect, I look in the future to a greater degree of cooperation on the part of the manufacturers than has as yet been apparent, chiefly because the needs of the situation are just now making themselves apparent."

The promotion methods used by a great many different companies are strikingly similar, Mr. Michel said. It was recognized in the early stages of the promotion that air conditioning must be felt to be appreciated, and as there were relatively few commercial installations to which the public had access, exhibits were established by the utilities. Many of these took the form of air conditioning installations on their own premises; others were merchandising exhibits; and in some cases demonstration

equipment was installed on customers' premises—a plan that has had far reaching effects in developing new fields. Direct mail and newspaper advertising often made these exhibits the central theme.

"This promotion has become a 12 months' activity, because during the winter the architect and engineer have more time to consider air conditioning problems than they have during the summer months, and it was found that prospective home owners were interested in looking over equipment prior to the spring building period.

Sell Health and Comfort

"To create a widespread use of air conditioning, we must sell health and comfort in the home and office. We must convince the merchant and the restaurant owner that in commercial establishments it pays by attracting more customers, increasing their interest, and stimulating salespeople to greater activity. We must be able to prove to the factory owner that air conditioning often facilitates his manufacturing processes, improves his product, and that its effect on his employees stimulates efficiency.

"Air conditioning has not as yet reached the stage where it can be sold without referring to underlying principles. The automobile of today is sold on performance, beauty, and other attributes of that character, but in 1914 the buyer was interested in the transmission, the differential, and the internal combustion engine.

"So it is with air conditioning. Many prospects still desire to know why and how, and where we encounter that attitude, it must be satisfied before the sales presentation is made. On the larger installations, of course technical knowledge is required to meet the situation. As a result, we have found that when sales ability is backed by a thorough knowledge of the mechanics of air conditioning, the best results are achieved."

He cited local experience as an example, which, he said, reflects the general progress being made throughout the industry.

"In January, 1933, we were serving 91 installations, with a total load of less than 5,000 kilowatts. By January, 1934, this had grown to 171 installations, with a load of approximately 5,600 kilowatts. By January, 1935, the number of installations was 321 and the load slightly in excess of 6,600 kilowatts.

"In the following 16 months, 251 new installations were made, with a connected load of 6,527 kilowatts, practically doubling the air-conditioning load on our lines."

Concluding with a look at the future, Mr. Michel says cooperation between utility and manufacturer in charting the industry's future course is essential.

"It may be too early to follow in the steps of the Electric Refrigeration Bureau. It may be that never can we successfully use the same means to reach our objectives as did that Bureau, but the shining example of the operation of that body will bear the closest examination, and should we decide that we cannot make use of the methods that resulted in its outstanding success, we should be able to answer clearly the question—if not, why not?"

Tillman Says Improved Room Cooler Design Opens Door to Sales Opportunities By Widening Market for Conditioners

Since air conditioning first attained prominence in the public consciousness and began to exert a definite appeal as a means toward a more comfortable and pleasurable life, manufacturers have striven to produce equipment which would enable them to capitalize the maximum sales possibilities inherent in this modern development, Mr. Tillman said.

"Marketing history was made in the sale of cash registers, automobiles, electric refrigerators and other mechanical devices, and the agencies responsible for the manufacture and distribution of air-conditioning apparatus naturally determined that, where climatic conditions justified, its marketing should proceed along similar lines.

"During the past six years a tremendous amount of work has been done in improving, simplifying and standardizing equipment and systems.

In the course of this evolution, a number of small pieces of air-conditioning apparatus have been developed, the design of which has been directed to the ultimate objective of our merchandising age; that is, a standardized article, which could be sold through regular trade channels, at an established price low enough to provide the comforts of air conditioning for people of moderate means.

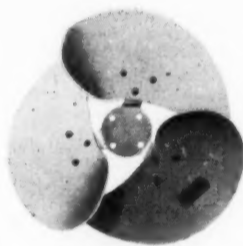
"It seems doubtful that they will radically change air conditioning from the engineering-contracting activity that it is today. There is no question, however, but that they will have considerable effect in spreading the desire for, and the use of, air conditioning."

Unit air conditioners Mr. Tillman divided into two classes. First are those small standard air-conditioning units in which the refrigeration for summer

(Continued on Page 12, Column 1)

20 QUALITY FEATURES

(No. 12)



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Tillman Outlines Methods of Selling and Installing Room-Type Air Conditioners; Gives Current Consumption Estimates

(Continued from Page 11, Column 5)

conditioning and the steam for winter heating is supplied from an external source.

Second are the self-contained units which are equipped with a refrigeration compressor mounted within the unit casing proper, complete and ready for operation after the necessary electrical and water, drain or outdoor air connections have been made.

Extent of Market?

"While there may be a large potential market for the self-contained air-conditioning unit, it is impossible at this time to judge the extent of such a market," Mr. Tillman said. "In any attempt to appraise the market possibilities, consideration must be given to certain features that differentiate this equipment from other specialty items. The first and most important feature is that the self-contained unit air conditioner does not do a complete job the year 'round. It provides comfort cooling for a single office, a living room, or a bedroom, whereas the customer's establishment usually consists of a suite of offices, or includes a general office, or comprises an entire residence."

As a stepping stone to a complete installation, the unit air conditioner should prove most valuable, the speaker said. As an end in itself, it falls short of supplying the need, and rendering the satisfaction that the average individual who can afford such improvements will naturally and finally demand. The exceptional cases, where self-contained units fulfill the complete requirement, such as in professional offices, etc., will be discussed later in more detail.

Action of Compressor

"In a discussion of either type of air-conditioning equipment it is well to bear in mind one salient fact," he added. "The predominant feature of air conditioning is summer cooling and dehumidification and this requires the use of refrigeration. A refrigeration compressor is simply a heat pump, and the heat that is removed from the space being cooled must be disposed of either to cooling water from the city mains or to air passed over the condenser coil."

"Because of the quantity of heat handled in air conditioning, the problem of its disposal is a serious one and is a factor that definitely limits the portability of any air-conditioning equipment. Before discussing this factor further, it is well to mention that relatively large quantities of power are required for the heat pumping work done by the refrigeration machine and for the operation of the circulating fans which handle the air that is being cooled."

"Therefore, the matter of supplying power to operate unit air conditioners is not a simple one. It usually necessitates the installation of separate

circuits back to the nearest distributing panel.

"The dissipation of heat from condensers can be accomplished by either of two methods, Mr. Tillman said. The first is to dispose of it to tap water which is then discharged to the sewer. Due to the relatively low temperature and high heat capacity of water, the use of this system of heat disposal permits lower condenser temperature and therefore less power is required by the refrigeration compressor than is necessary if the second method is used; namely, disposal of the condenser heat to outside air of relatively high temperature and low heat capacity.

Problems of Installation

"The installation of a self-contained air conditioning unit equipped with a water-cooled condenser is complicated, however, by the fact that not only electrical connections, but also water supply and drain connections from the condenser must be made."

"Drain facilities must also be provided to carry away the water removed from the air during the process of dehumidification, which must flow from the evaporator coils by gravity."

"Unit air conditioners having water-cooled condensers consume a relatively small amount of current and certain designs have been developed which are suitable for use on 110 volt lighting circuits provided such circuits are not already loaded to capacity. Units which require only 900 watts input for operation have been designed to take care of small offices."

Self-Contained Conditioner

During the past two years the self-contained unit conditioner which uses air for condenser cooling has been brought to a marketable stage, Mr. Tillman added. These units have an obvious advantage in portability, since almost any room has a window which can be adapted to provide a source of outside air for condenser cooling purposes. Of course, it is necessary for the unit to be located directly in front of the window which may present a disadvantage in some instances. Special removable fittings with alterable ducts connecting the unit to the window intake fixture have been designed for double hung windows. A large fan, which usually operates from the compressor drive motor, draws outside air over the compressor and discharges it through the condenser coils and thence through the duct to the outside.

The water which is removed from the room air in the process of dehumidification drops from the evaporator coil to a pan beneath the condenser coil where it is picked up and thrown against the hot condenser surfaces by a spinner wheel. Thus, the water removed from the room air in the process of dehumidification is evaporated on the condenser surfaces and carried out of doors by the discharge air from the condenser.

"This method eliminates the necessity for a gravity drain to handle the condensate and also improves, by evaporative cooling, the efficiency of the air cooled condenser. Units of this type to supply the average small office are available having power consumption that averages as low as 1,100 watts. However, the compressor motor in most cases must be $\frac{1}{2}$ hp., or larger, so that it cannot be generally applied to 110 volt lighting circuits without disturbance to lighting. It is preferable to run a separate 220 volts, single phase supply, which is a factor that affects to some extent the merchandising possibilities of these units."

Cost of Equipment

"Self-contained air conditioning units of sufficient capacity to care for the average small office or room in a residence, with either water-cooled or air-cooled condensers, are available today at a price ranging from approximately \$400 f.o.b. factory, upward."

"Under favorable conditions, the cost of electric, water and drain connections for the water cooled condenser type would probably be within \$40 and the cost of running special circuits to supply current to the air cooled condenser type would not exceed \$25. One of the most desirable features of this equipment is the fact that it is virtually 100% salvageable, so that it is readily salable to persons occupying offices, apartments or homes on a short term lease basis."

Adapted for Display

"These units are adapted for display on the sales floors of department stores and in utility company showrooms. Such displays, coupled with some general newspaper advertising and direct mailings to executive and professional classes should be productive of sufficient inquiries to form a basic prospect list."

"Any utility company should be willing to provide display space and should lend the weight of its name to any advertising campaign or, if necessary, inaugurate a campaign for the benefit of the merchandising agencies handling self contained units. The equipment is well adapted for sales or promotion by companies that operate merchandise departments."

Specialty Selling Products

"Sales solicitation can be made by specialty salesman who, through the exercise of reasonable judgment, should be qualified to inform a prospect as to the total cost of installation with sufficient accuracy definitely to establish or to eliminate the sales possibility. While every application should be checked for heat load by an experienced engineer, this can be done quickly and easily and no extensive engineering data or estimates are necessary for the completion of the installation. Of course, it is essential that the equipment be properly sold and applied. Self-contained units are not adaptable to any but the smallest installations and careful control should be exercised over the sales agencies handling them to prevent their use in places where full satisfaction will not be obtained from the operation."

Not Equipped for Heating

"Because of their semi-portable nature, self-contained air conditioning units are not ordinarily equipped with heating coils, although heater coils are available in some makes which, when connected to a source of steam supply, will permit operation in winter as a heating and ventilating unit."

"One manufacturer is marketing a unit which embodies the reverse refrigeration heating cycle, which will provide an economical means of heating by electricity with outside temperatures as low as 40° F. Such units may find wide application in the more southerly sections of the country."

The use of the self-contained unit presents the cheapest method of taking care of a single room or possibly two rooms, Mr. Tillman said. When more than two rooms are to be supplied, however, it is probable that a more economical installation can be effected by using unit air handling apparatus in connection with an external source of refrigeration."

Advantages of System

Such an installation has the advantage of permitting a real diversification of the refrigeration load between the individual rooms which will permit the use of a compressor of a capacity smaller than the total combined unit capacity. This is particularly desirable from the standpoint of the public utility since the operations will involve a lower peak demand with more full load hours. This condition will apply especially in residential installations where there is a high diversity in the use of rooms."

For example, a residential installation might require two tons of refrigeration capacity and three units to take care of the first floor living quarters during the day. The second floor sleeping quarters could be supplied during the night by the same two ton compressor operating on three units located in the bedrooms. The installation could be equipped

with switchover mechanism to control such operation, and the full use of the compressor thus extended over the period when both the living quarters and the sleeping quarters are occupied.

Proper Size Important

"The installation of air handling units provided with refrigeration from an external source is, however, an engineering undertaking," he added.

"The individual units must be carefully sized to the load in each room and the refrigeration system must be accurately sized to the diversified load of the units."

"Refrigeration liquid and suction lines must be run from the central compressor location to each unit by skilled refrigeration mechanics. Each unit must be equipped with a drain for the disposal of condensate from the evaporator coils, and it is usually necessary to insulate the refrigeration suction lines."

The air handling units in such systems do not have to be as compactly designed as self-contained units and accordingly it is practical to equip them with heating coils and humidifying sprays for winter use so that they will provide all the functions of air conditioning the year 'round. While this equipment is not portable, it may be installed with relative ease and lack of disturbance in offices or homes equipped with conventional radiator heating, and will thus make complete air conditioning available to the large market of users occupying existing structures."

Installation Problem Reduced

"With the self-contained unit, however, detail of installation has been reduced to a minimum. The equipment is simple and can be installed quickly at the request of the overheated customer who wants relief. This is particularly important because it is easier to sell a man air conditioning equipment in hot weather when he feels a pressing need for relief. A prospect is more willing to make the decision to spend money for comfort if he knows that he can have the unit delivered, installed, and operating in from 12 or 36 hours. Self-contained units are available for immediate sale to prospects who would hesitate to buy if there were much delay between the signing of an order and the installation of the equipment."

"The use of such a unit will give any individual a delicious taste of air conditioning, which will whet his appetite for a constant diet of it. The executive occupying an air conditioned office will find warm weather conditions at home almost unbearable, and having a remedy at hand, with which he has had definite experience, will be inclined to install air conditioning for his comfort during those hours spent in his home."

Employees Want Conditioning

"Employees who have occasion to use a conditioned executive office for conferences will exert influence to have the general office space conditioned."

Mr. Tillman cited an example in Baltimore where, in the summer of 1933, air conditioning was established

in the private office of the president of a concern. In the summer of 1934, the application was extended to include the entire executive office floor, and in 1935, the concern installed air conditioning for their entire office building. Already, one of the executives of this concern has under construction a new residence which will be equipped with complete year 'round air conditioning."

"It is natural for friends, business acquaintances and employees who find a practical application of air conditioning in a man's office or home, to feel that it is feasible for them to have it too. Such an application is more powerful in creating desire than an installation in a department store or a motion picture theater."

Revenue Possibilities

Possibilities of the unit air conditioner as a revenue producer still remain to be determined, Mr. Tillman said.

"Based on estimates of average weather conditions and actual tests of the operation of air conditioning systems in Baltimore, a unit air conditioner in the average commercial office should operate a minimum of 600 hours per season. Of course, the use in any particular case will depend upon the climatic conditions and the character of occupancy. As people become more accustomed to the benefits of air conditioning, and less conscious of operating costs, we may have to revise this estimate upward."

The power consumption of self-contained air conditioning units varies from a minimum of approximately 900 watts to a maximum for the largest unit now offered on the market of 2,000 watts, the speaker added. The average of all installations will probably consume approximately 1,100 watts, so that power sales of 600 to 700 kilowatt hours per season per unit installed may be expected."

Hours of Operation in Home

The self-contained air conditioning unit in a residence will probably not be used as many hours during the season as it will be in the average commercial office, for it is very difficult to confine the activities of a family to a single room. Single units in residence will probably be operated from 350 to 400 hours per season, though in a case of a unit used by invalid or hay fever sufferer, the use may run as high as 1,200 hours per season."

"Residential installations involving the use of unit air handling equipment provided with refrigeration from an external source taking into account the full effect of diversity of loads in various rooms may be run from 1,200 to 1,500 hours per season. A system such as previously described with six rooms in a residence, taken care of in alternates of three rooms, would require approximately two kilowatts for compressor operation, and should result in the sale of from 2,500 to 3,000 kwh. per season."

"Normal commercial applications using unit type air handling equipment with externally located refrigeration should operate approximately 700 hours per season, the kilowatt (Concluded on Page 13, Column 1)

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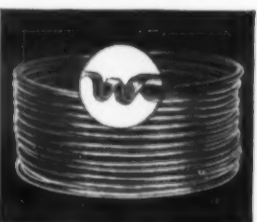
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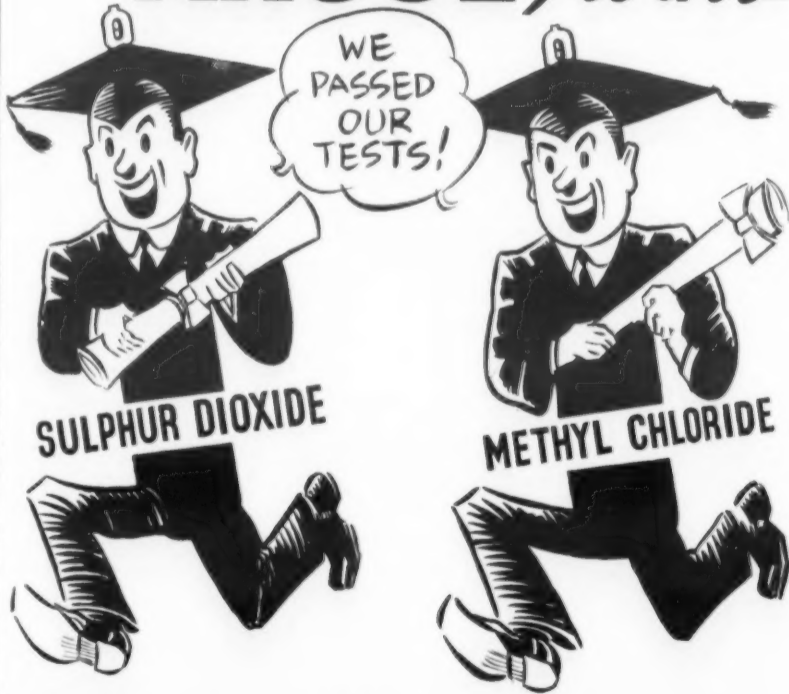
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E.E.I. Speaker Warns About 'Over-Selling' Unit Conditioners

(Concluded from Page 12, Column 5)

sales, of course, depending upon the size of the installation."

Summing up the various factors that pertain to unit air conditioners, Mr. Tillman said that such equipment is not strictly comparable with other electric appliances such as refrigerators, washing machines, ranges and water heaters. There are elements in connection with its application and installation which place it in a category distinct from that occupied by the usual package-merchandise article.

"It is really one phase of the whole air conditioning-engineering activity," he said, "and the attempt to divorce it from this and place it on a separate plane, while it may, to a certain extent, be possible, does not appear to be the most practical and efficient method."

"For certain purposes, unit air conditioners offer the ideal means of filling an air conditioning need. In doc-

tors' and dentists' offices and other single offices, these units are practical and there should be large sales possibilities, because prospects of these general classes can usually afford the installation. There should be a substantial field for their application in homes although the possibilities here are more uncertain."

"Home owners who are willing and able to make the investment required to air condition one or two rooms, will usually want a more complete application of air conditioning. For sick rooms, however, and in homes where there are invalids or hay fever sufferers, the self-contained unit is a modern innovation that fulfills an essential need and is within reach of persons of quite moderate means."

"The significance of the unit air conditioner lies in its promotional possibilities and the fact that it gives us a suitable medium to supply small-scale requirements. If we can make full use of it in its proper place, without 'over-selling' it and without expecting it to be a panacea for all air conditioning needs, it will prove exceedingly valuable in bringing to the public mind the realization that air conditioning is available for general use now."

Moore Describes Factors in Installation & Operation of an Attic Ventilating System for Home Cooling

"Home cooling by attic ventilation is not to be considered as a substitute for a complete air conditioning system," Mr. Moore said. "It is an adjunct to a complete system, or if used alone, an economical means of securing relief from summer heat."

"This is secured through the practical application of the disc type exhaust fan that has long been used by commercial and industrial establishments. The sizes generally used are 36, 42 and 48 inches, operated by 1/4-hp. to 1/2-hp. motors. The selection of the size to be used is governed by the total cubic content of the house in which it is to be installed. For maximum results it is necessary to change the air through the house every minute to a minute and half."

Attic Temperature High

"The usual difference between the maximum and minimum summer daily temperature in Central Texas is 20 to 25° F. or more. The average un-ventilated attic temperature exceeds the daily maximum outside temperature by 20 to 40° F. These homes are literally covered with a blanket of heat ranging from 130 to 150° F. This heat radiates into the rooms under the attic ceiling and makes them 'as hot as an oven' most of the day and night."

With the natural increase of heat, as summer progresses, there is continuous accumulation of heat in the roof, beams, attic, rooms and contents, Mr. Moore said. It is true that some lowering of the temperature of the home takes place during the night but the short nights of summer do not allow for an equalization of temperature. For this reason these ventilating systems should be started early and used throughout the summer season."

Effect of Attic Cooling

"Of course, the maximum cooling effect possible must be gained by reducing the inside temperature to the

ambient temperature outdoors. Usually this maximum effect is not possible, but by attic ventilation we can reduce indoor temperature to within 3 or 4 degrees of the minimum outdoor temperature. This lowered temperature of the home acts as a reservoir of refrigeration which, with forced ventilation of the attic during the daytime, causes the home to remain cool."

"Let me emphasize, however, that home cooling by attic ventilation is most effective for night cooling, being limited for daytime use, at least in hot climates, to merely adding that comfort which results from air movement and ventilation."

Advantages of Method

The advantages of this method of cooling, Mr. Moore said, are:

1. An excellent job of cooling and ventilation.
2. Low cost of equipment and installation, as well as low cost of operation. (Installation cost varies from \$200 to \$350 for an entire house).
3. Simplicity of operation which can be made automatic by adding an inexpensive time switch.
4. The inconsequential costs of repair and maintenance of the equipment.
5. Flexibility of operation in that it can be used to cool and ventilate a single room or the entire home by simply opening and closing windows and doors.
6. Elimination of the expense and necessity for providing sleeping porches in new homes. Every bedroom is in effect a sleeping porch in the homes that have home cooling by attic ventilation. The cost of a cooling system adequate for the entire home is less than the construction cost of a single sleeping porch.
7. Making possible the use of attic space for playrooms or for other purposes.

Cannot Be Sold as Package

"Our experience has pointed out very plainly and definitely that the

application of this method of cooling has not advanced to the stage where it can be sold in a standard package," he added. "To prevent set-backs in its introduction into communities, each case should be studied carefully by a specially trained sales engineer, or the equivalent, to insure:

"1. Adequate fan capacity to give a complete air change in a one story house of at least once a minute. In two story houses the air change should be at least once in one and half minutes."

"This is considerably higher than the rate of air change recommended by some engineers and some manufacturers. Tests conducted at the University of Illinois Research Residence show that a maximum cooling effect can be obtained when the air is changed once in two minutes. Our experience, however, has proved the larger capacity to be essential for central Texas climate. Our reason for recommending the use of fans of larger capacity is to create an air motion of sufficient velocity to reduce the effective temperature during the daytime and the early evening hours."

With air moving at the velocity of 500 f.p.m., the effective temperature is reduced approximately 6 degrees).

Location and Design of Grilles

"2. Proper location and design of grilles and attic outlets. With the type of construction existing in the Southwest, we have found it necessary in most cases to use a single centrally located suction box, through which the air is drawn from the rooms and exhausted into attic space. The pressure built up in the attic space forces the air through louvered openings to the outside."

"Grilles and outlets should be designed for a 'free' air area sufficient to allow an air velocity not in excess of 800 f.p.m."

"3. Quietness in operation. Consideration of this is of utmost importance in selecting the fan and designing the installation of the system. Since the speed of the fan blade is the most important factor in determining the noise of a fan, low blade speed is essential. In order to keep the cost to a minimum, consistent with good efficiency, we have used and recommended the use of a belt driven unit, with standard high-speed motors."

Power Consumption

The power consumption of installations in use on Texas Power & Light Co.'s system ranges from 300 to 400 kwh. per season, Mr. Moore said. Since most of those purchasing cooling systems are already liberal users of electric service, the added energy consumption is usually on the lower steps of the rate schedule, which makes the annual cost of operation range from \$12 to \$15."

"If this system of cooling is as effective as is claimed, with low cost of installation and operation, you may naturally ask 'Why have not more units been sold?' he went on. "The answer, in my opinion, is:

"1. This method of cooling was introduced with the beginning of the depression. During the past five years any item selling for more than \$200 has been difficult to sell. Especially is this true of one that is new to the market."

No Selling Campaigns

"2. Until recently there has been no extensive and well planned campaign to promote its sale. A few utilities have individually carried on sales

activities as aggressively as limited sales budgets would permit. Neither the fan manufacturers nor the utilities have realized the sales possibilities of this type of cooling and consequently adequate equipment and sales promotion have been lacking. I know of one large manufacturer, however, who is convinced that there is a good market for this equipment and who, this year, has scheduled a production of 5,000 fans. He is also spending \$50,000 on sales promotion in the South."

"To approach this market in an effective way, on a national scale, it will be necessary, in my opinion, for the manufacturers and utilities to combine their efforts in going after this business."

In a cooperative sales plan the manufacturers should undertake to do the national advertising, to establish dealer sales outlets, and to provide for the training of dealer's salesmen, Mr. Moore said.

The utilities should provide the sales personnel and local advertising to sell the idea of home cooling by attic ventilation to their customers and should assist local dealers in making sales of equipment; they should also take the responsibility of promoting the sales of this method of cooling with the architects, contractors and real estate development companies in an endeavor to have the plans and specifications for all new homes include cooling by attic ventilation."

Openings into Attic

Where it is not possible to have a complete cooling system included in the plans and specifications, then at least provisions should be made for attic louvers and for framed openings in the hall of the proper size for a grille, for future use."

The framed opening may be covered with the hall ceiling material, until such time as the cooling system is installed. This will add practically nothing to the cost of the home and will make the later installation of a home cooling system very inexpensive."

If all new homes were provided with grilles and louver outlets in the attic, Mr. Moore said, the sale of this system of cooling would be greatly simplified, because it could then be merchandised as a package job."

Market in Existing Homes

"The big market for this system of cooling is, of course, in existing homes where we find all types and kinds of houses, making each installation an individual construction problem requiring accurate cost estimates before a price can be quoted. As we have more experience in making installations, it may be practical to classify buildings into some three or four general groups, according to type, and

make a flat price for each class of homes for a complete installation ready to run. This will greatly simplify the sales problems."

"Where the utilities sell only the fan and depend on the carpenter-contractor or other tradesmen to make the installation, many complications arise which make the closing of the sale slow and difficult. On account of the amount of construction work to be done, the cost of which is from 33 1/3 to 50% of the cost of the fan, and on account of the need for specialized mechanics in making an installation, the sale of the equipment seems to naturally belong in the hands of specialty dealers."

"In the initial stage of the development, however, utilities may find it necessary to sell and install the equipment, as we have done, because dealers cannot be found who are willing or who are financially able to bear the cost of promoting the sale of the first few units, in each locality before there is a general enough acceptance of the idea to make sales profitable."

Methods of Promotion

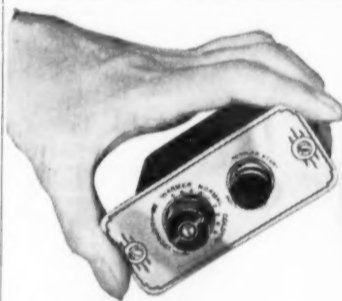
"As an aid to sales, it may interest you to know of a scheme we use. This proposition is plainly a case of 'seeing is believing'. One installation to which the public has access is worth many, many pages of advertising or salesmen's talk. Our company operates through 34 separate districts, each of them under the supervision of a local manager."

"It was proposed to our managers that if they would equip their homes at cost with this system, we would allow them \$1 per demonstration; that is, for every prospect whom they reported as having been taken through their homes and shown the workings of this system, we would credit them \$1 on their account. I am telling you this as a hint for one means of providing demonstrations."

Value of Installation

"That a demonstration is the best selling agent can be verified by innumerable instances. An example—one of our officials, only this spring, put an installation in his home, hurrying the job somewhat that it might be ready for a group luncheon which was to be given there by his wife. Twenty-four ladies sat down at the table, out of which number, two asked that salesmen be sent to their homes as they were convinced they wanted to have installations made."

"The proof of worth is the value placed on an appliance or service by the user. Of more than 150 installations of home cooling by attic ventilation on the system of the Texas Power & Light Co., we have 100% customer satisfaction."



For Replacement Service

The dependable C-H Refrigerator Control is now available as a replacement unit. Same control used on popular-make Refrigerators . . . proved by time and service . . . manufactured by the Pioneer Control Company with 50 years of experience.

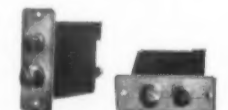
Easy to install, has the features which bring large-volume replacement business. Keep four models on hand and you are ready for 99% of all domestic calls. Each model mounts horizontally or vertically, fits large or small evaporator-shield openings. Simple connections get job done in a hurry.

NEW MODERN FEATURES. Differential adjustment screw gives whatever cut-in and cut-out temperatures or pressures are wanted; cold-control knob adjusts temperature or pressure range; defrost position; full overload protection to motor, resetting from self-indicating start-stop button. Handsome modern indicator plate in shiny chromium and black.

See your jobber at once. Send for complete new catalog describing this modern replacement control. Also replacement control for beverage coolers, ice cream cabinets and commercial service. Send for the catalog today. CUTLER-HAMMER, Inc., Pioneer Manufacturers of Electric Control Apparatus, 1362 St. Paul Avenue, Milwaukee, Wisconsin.



4 models meet 99% of all domestic calls. Temperature type in 24" and 48" tubes. Pressure type for sulphur dioxide and methyl chloride systems.



Mounts Horizontally or Vertically. Installs easily.

FOR BEVERAGE COOLERS AND ICE CREAM CABINETS

C-H Replacement Control for commercial use offers same big advantages as domestic controls. See catalog for full description.

CURTIS REFRIGERATION

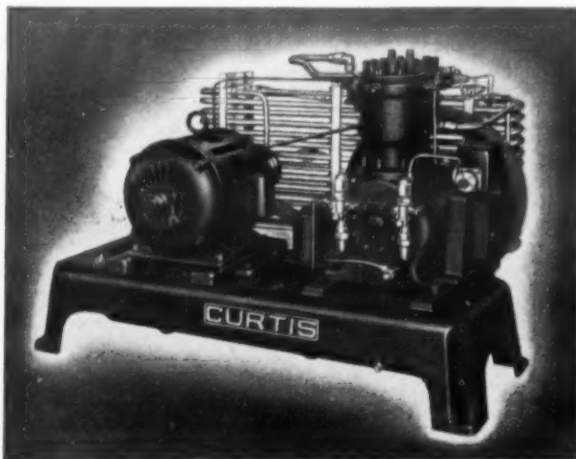
Units to fit every need

Curtis, one of the oldest compressor manufacturers, offers an unusually complete line of refrigerating units—1/6 to 2 H.P. air cooled; 1/3 to 30 tons water cooled—reflecting 82 years of successful engineering, designing and manufacturing experience. Some desirable territories are still open for reliable distributors.

ESTABLISHED 1854

Write for details.

CURTIS



CURTIS REFRIGERATING MACHINE CO.
Division of Curtis Manufacturing Company
1912 Kienlen Avenue, Saint Louis, U. S. A.
In Canada
CANADIAN CURTIS REFRIGERATION CO., LTD.
20 George Street, Hamilton, Ontario, Canada

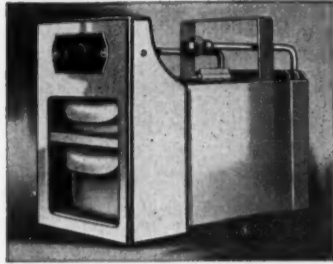
CUTLER-HAMMER

REFRIGERATION CONTROL FOR REPLACEMENT SERVICE

The Buyer's Guide

Special rates apply to this column only.
Write Advertising Dept. for full information.

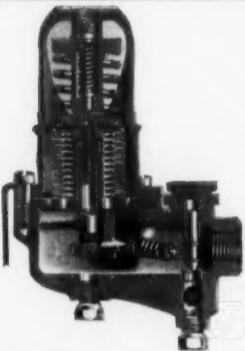
The NEW "HUMIDIPACK" EVAPORATOR by PEERLESS



A "1936" line of Household Evaporators with "1936" sales points.

1. High Box Humidity
2. Fast Ice Cube Freezing
3. Clean design—Smooth exterior
4. Reasonable prices
5. "Humidi-pack" is the Power-Pack of Refrigeration

PEERLESS ICE MACHINE CO.
CHICAGO TWO FACTORIES NEW YORK
515 W. 35th St. 43-00 36th St., L.I.C.
Representatives in all principal cities.



STANDARD REFRIGERATING APPLIANCES

SNAP-ACTION MULTIPLE TEMPERATURE VALVES

The valve illustrated—S2V—regardless of range or differential setting opens and closes with a positive snapping action at any previously determined settings which are within its limitations. Exclusive feature is adjustable range of 20° of vacuum to 60 pounds pressure in single valve. Differential is adjustable, varying from 15° of vacuum to approximately 29 pounds at the higher pressure ranges.

Write for Bulletin 17 for full information and detailed drawings.

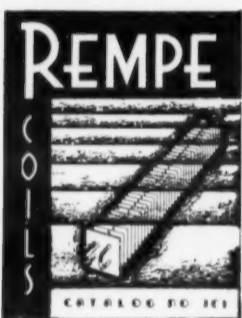
AMERICAN INJECTOR COMPANY 481-1418, Detroit, Mich.

Replace with RANCOSTAT!

It's the sure way, the safe way, the quick way. Sturdily built of Stainless Steel. Fewer parts—machined to close precision limits. 30 Replacement Models. Write for new Bulletin—No. 655.

The Automatic Reclosing Circuit Breaker Co. Columbus, Ohio

For quick replacements and satisfied customers—



READY NOW • OUR NEW CATALOGUE

WRITE FOR IT AT ONCE

REMPE "FIN COIL" COMPANY
340 North Sacramento Boulevard . . . Chicago, Ill.

GILMER V-Belts

For electric refrigerators, washers, beer pumps, oil burners, compressors, air-conditioning units, etc. . . Gilmer has a V-Belt to fit . . . from the largest stock of moulds in the world. Write for V-Belt catalog.



**QUIET
EFFICIENT
LONG-LIVED**

L. H. GILMER COMPANY, TACONY, PHILADELPHIA

HENRY

**TUBE CUTTER
WITH STEEL ROLLERS
IN TUBE SUPPORT**

Patents Pending



FOR HARD DRAWN COPPER PIPE

A tube cutter that's in a class by itself! Friction is reduced by the steel rollers. Very sturdy. Easy hand grip assures continuous feed of cutter wheel. Replaceable resamer and cutter wheel.

No. 10 for 3/16" to 1/2" o.d. inc. . . \$2.20
No. 20 for 1/2" to 1 1/8" o.d. inc. . . 2.75
No. 30 for 1" to 2 1/4" o.d. inc. . . 3.75

HENRY VALVE CO
1001-19 N. Spaulding Ave., Chicago, Ill.

IF YOUR JOBBER CAN'T SUPPLY YOU, ORDER DIRECT

Refrigeration Instruments by Marsh

MARSH MERKUSTAT MERCURY TUBE ELECTRICAL CUT-OUT is a pressure operated electrical motor control. A bourdon tube in conjunction with a snap-action movement makes and breaks mercury-to-mercury contacts.

Constructed with bronze bourdon tube for any pressure medium which will not deteriorate bronze or with steel bourdon tube for ammonia and carbon dioxide.

As installed upon the compression side of any commercial refrigeration unit, this instrument acts as a safety electrical cut-out to prevent the building up of excessive pressures.

Its dependability in operation and correctness in principle and design eliminates the constant supervision, numerous breakdowns and high service costs often experienced through the failure of control mechanism.



Jas. P. Marsh Corporation
2067 SOUTHPORT AVE., CHICAGO, ILL.

St. Louis Dealers Expect Bonus Pay-Off Will Boost Sales of Air-Conditioning Equipment

By T. T. Quinn

ST. LOUIS—Commercial refrigeration and air-conditioning distributors and dealers in the Mound City are looking ahead to some big business after June 15.

The bonus pay-off will dump something like 40 million dollars into circulation in this territory—and most of this money is going to be spent pronto—for automobiles, furniture, home furnishings, clothes . . . and refrigeration and air conditioning.

Commercial refrigeration and air-conditioning men figure to get a good share of this money direct. But perhaps their greatest part of it will come indirectly—from merchants who, with back bills of several years' standing paid up at last, are going to use the "windfall" for much-needed modernization of their business quarters.

This last is, perhaps, particularly true of commercial refrigeration. But air conditioning, notably the portable single room units, stands to gain in good measure as well.

Air-conditioning business in St. Louis is good right now—better, in fact, than it has ever been before.

Big Gain in Load Shown

Ernest A. Freund, manager of the air-conditioning division of Union Electric Light & Power Co., says that the total load added to the utility's system so far this year is already three times the total for all of last year.

Things in the air-conditioning field have been so busy, as far as Mr. Freund is concerned, that he hasn't even had time to obtain the figures on just how many installations have been made in the city to date this year. His department, which normally has a half dozen men in it, has had an extra load put on it because of the illness of one of the most valued workers in it.

As a consequence, Mr. Freund and others in the department have been working from sun-up to dusk, trying to keep pace with the city's air-conditioning problems—and Mr. Freund himself has been spending practically all of his time in the field, doing only the "must" routine office work.

Jobs Are Running Larger

One thing Mr. Freund is sure of, however, about St. Louis air-conditioning progress this year, is this—jobs, on the average, are running larger this year than before.

St. Louis has long been a national leader in the application of residential air conditioning. Close to 200 of the city's home are conditioned—most of them with portable room coolers, self-contained and otherwise.

Popularity of unit room coolers in St. Louis needs no justification to those who know what the city is like in summer. Temperatures get up around 95 and 96° F. and hang there, sometimes for weeks at a stretch. Proximity to the Mississippi river causes equally high humidity.

Designed for Night Comfort

The city, in severe hot weather, is blanketed with a sticky, muggy, atmosphere that, unrelieved, allows for scant comfort, day or night, save perhaps for those fortunate few who have homes "out in the county." Even there, conditions are not a whole lot better.

And so most of St. Louis' air-conditioning installations in homes have been for night comfort, primarily—for cooling sleeping rooms and allowing the man of the house to get a night's rest and be at least partially refreshed for his 12- or 16-hour battle with the heat next day.

More of this year's installations, says Mr. Freund, are in the larger sizes. And to him that is much more significant than mere numbers. It means that air conditioning is beginning to be applied to entire homes, rather than to only a part of them, as in the past.

But the field is still practically untouched.

Residential Market Best

"Potentially, of course, the really big field is the residential one," Mr. Freund said. "When building operations really start here in earnest—and there's already considerable building going on in and around the city—air conditioning for the home will take bounds the like of which we can't do anything more than imagine just now."

"With our noses pretty close to the grindstone down here, we're apt to lose sight, to a great extent, of the real potentialities ahead of us in the air-conditioning field."

"I can remember how it was down here when we got things started in our own air-conditioning department. At that time, we said to each other: 'When we get up to 1,000 kwh. on the lines, we'll begin to go somewhere as a department.' We worked away, and finally we hit the mark. Then, I think, we really began to see what was actually in there for us, if we went after it."

"It's just like Mr. Michel (C. E. Michel, Union Electric vice president and head of E. E. I.'s air-conditioning committee) said at a conference not long ago: 'If we can get the long-range view of the air-conditioning field, and build for the future as well as for the immediate present, we'll begin to realize the real possibilities of the industry, both for ourselves and for the manufacturers.'"

"Residential conditioning has the biggest potentialities—and this covers the work of modernizing existing homes as well as that of installing complete systems in new ones. Air conditioning will some day be as much of a necessity in the home as heating is today."

"Another thing air conditioning will do is keep people at home during the hot months. Without it, as many homes are now, the family is always on the go during the summer—trying to escape the heat. On Sundays, the whole family piles into the automobile and they drive all over the country 'to cool off.' Air conditioning will make the home so comfortable in summer that there'll be no necessity to travel around seeking relief from the heat."

Commercial Air Conditioning

Commercial air conditioning is another field in St. Louis in which the surface has just been scratched.

"Potentially, of course, the saturation point in the commercial field goes up much faster than in the home—but, despite the encouraging job that's been done here, it's nothing more than a start."

"A totally untouched field in St. Louis is the apartment house field—and installations of this sort are bound to come, and come rapidly, with some nice profits in them for air-conditioning firms."

"Another field which will assume importance, and in which only a start has been made, is that of office buildings. There is only one air-conditioned office building in the city now, although there are many unit coolers in private offices. So you see the field still has to be developed."

"Small stores are in another field which is bound to assume importance—and we still haven't an air-conditioned department store in town. That's a job of major significance now. When one department store is conditioned, others will not lag long in falling in line."

Qualifications for Success

Do firms or individuals with commercial refrigeration experience stand the best chance of success in air conditioning? If not, just how do they stack up? And anyway, what previous experience, if any, best fits a newcomer for success in air conditioning? Mr. Freund was asked these questions.

Here is his answer:

"You know, it's unusual to hear you ask that question. And yet it isn't unusual either—for I've been asked it scores of times."

"Success in air conditioning, according to what I've noticed, depends on the individual—and not upon the type of work he's been doing previously."

At least it's been that way in St. Louis.

"Do refrigeration men stand up well? Yes, especially in the smaller size jobs—say up to 5 hp."

"Midwest Air Conditioning Corp., handling General Electric; Natkin & Co., Westinghouse; Frick Co., York—they're all doing a fine job, and their entry is altogether from the refrigeration angle."

"Over 5 hp., though, several other companies are in the picture, and they're doing a good job, too. One contractor, Sears & Piou, has come into the field with Carrier equipment, and has been doing a bang-up selling job. Sodemann Heat & Power Co., handling no particular line of equipment, is also very much in the forefront of air conditioning in this town. Gamp & Co., which just took over the Kelvinator franchise formerly held by Witte Hardware Co., also has all the earmarks of a potentially powerful factor in air conditioning."

Less Active as Salesmen

"So you see it doesn't make a great deal of difference what you did before you came into the field—it's what you do after you get in that counts."

"Generally speaking, however, heating contractors have been less active than those whose background was in refrigeration. That, I think, is because a good deal of the business here has been of the strictly selling variety—you had to go out after it, and use just about all the salesmanship you knew to land the order."

"Heating contractors, because of the experience they've had, know less about selling than those who have come up through refrigeration. They just don't relish the selling part of the job—although they're coming along in that part of the business now."

"But it's something they've not had a lot of experience with or necessity for—and so they naturally like to get away from it, if they can."

"Understand, this applies to the sales of 5 hp. or less—in the bigger jobs, these companies, many of them, are doing especially well; and they'll be an even greater factor in the field when air conditioning, as it eventually will, gets into the picture in the remodeling of existing homes."

"Right now, on the bigger 'bid' jobs, these companies without much experience in refrigeration—and selling are important factors. They get their full share of this type of business."

Leaders in the Market

Asked to name the outstanding firm in the St. Louis air-conditioning field, Mr. Freund said there wasn't any one company walking off with a lion's share of the jobs.

"A number of companies are doing well in air conditioning," he said. "Frigidaire (Eichler Heating Co.), Westinghouse, Kelvinator, General Electric, York, Carrier, Frick—all of them are doing their share of the business. So is Sodemann Heat & Power Co., representing no one manufacturer."

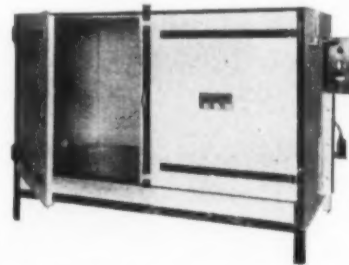
"Kelvinator figures to do better with Gamp Electric Co., appointed when Witte Hardware Co. gave up its franchise. Airtemp, without representation here for some time, has just set up a factory branch—and while it may not be in the picture to a large extent this year, you can expect it to be in there in a short while."

"Servel, represented by Supreme Engineering & Sales Corp., has been giving most of its attention to commercial refrigeration; and Lipman, with Supreme Heater & Ventilating Corp., hasn't been an important factor. In general, though, the business has been pretty well divided."

"For one thing, competition has been very keen, all along the line. Few jobs go to any company without a competitive struggle. This, of course, has its good sides, but it has its bad ones as well."

A practical low-priced oven

For Refrigeration Service Shops and Distributors . . .



Here is the oven you service men and refrigerator distributors really want—an oven that is practical for the service shop and a standard oven that is really low priced.

Put a Despatch Type C Oven in your service shop. Use it for dehydrating your refrigerator units. Marvel at the uniform and positive results you get in such a short time and with such low costs.

Then use it for baking and drying your finishes. It will do a fine job and your customers will certainly be pleased too.

Now use it for baking and drying insulating varnishes on coils and armatures, and for other odd jobs that always come up around the service shop. Despatch Type C Ovens are general utility ovens and that makes them of such outstanding value to any distributor and service man.

And the prices are the lowest for a standard service station oven. Equipped with gas or electric heating systems, and made in every size to meet individual requirements, these ovens range in price from \$45.00 up. Prices asked for these ovens only represent a fraction of their real worth. Standard ovens can be shipped immediately from stock.

WRITE TODAY for bulletin illustrating these ovens and outlining the remarkable low prices. Tell us about your problem too—Despatch can help you.

DESPATCH OVEN CO.

634 Ninth St., S. E.

Minneapolis, Minn.

Commercial Uses

Filterpure Unit Is Used to Circulate & Purify Cooler Air

HAMMOND, Ind.—Air circulation and air purification in commercial refrigerators are the functions provided by the Filterpure unit being marketed by the Betz Corp. of this city.

The Filterpure is a self-contained unit, built of aluminum and measuring 3½x6x20 in. The blower in the unit continuously forces all the air through a bed of activated carbon to purify the air.

It is claimed for the Filterpure unit that it lowers temperatures from 4° to 12° F., eliminates taste transfer, maintains even temperatures and humidities, and stops sweating of glass on display cases.

The unit has an air delivery of 40 c.f.m. with the shutter over the air distributing ports wide open. This rate of air delivery can be reduced to 6 c.f.m. with the shutter fully closed.

It is recommended that the unit be run continuously during the time that food is kept within the case or cabinet. In a reach-in box, which is used continuously, the motor is never shut off, but in a display case, if the meats are taken out at night and the case is not operated, the Filterpure should be shut off.

Recommended installation practice on the Filterpure is as follows: single-duty display case of the rear bunker type, the unit should be placed on its side underneath the meat pans pulling the air off the coils and blowing it toward the front of the case; in the single-duty display case with the top coil, the Filterpure should be placed upright in the most convenient part of the case allowing the air to blow upwards; in double-duty display cases the unit should be placed upright in the lower part of the case allowing the air to blow upwards; in reach-in wall boxes the preferred practice is to place the unit over the coils, directing the air flow down and over the coils.

C.I.T. Opens Fifth Office In Florida Territory

WEST PALM BEACH—Marking the establishment of its fifth Florida branch, the C. I. T. Corp. will open a new office June 15 in the Comeau Building here. The office will serve the following counties: Palm Beach, Martin, St. Lucie, Indian River and Okeechobee.

J. K. Albury of C. I. T.'s Miami office will head the new branch. Assisting him will be K. C. Campbell, who, for the past few months, has been local representative of the Miami C. I. T. office in this city.

Decision to inaugurate a local service came as a result of C. I. T.'s expanding business, and indications of general business improvements in the territory.

DISTRIBUTORS WANTED



Here's a money maker for you!
Write for prices

COOL DISPENSER CO.
7809 Oakland Ave., Detroit

KRACK
ENGINEERED

Lifetime Coils and Units Customized to Fit Your Job
REFRIGERATION APPLIANCES, Inc.
1342 West Lake Street, Chicago

Standard Warranties Of ACMA & RMA Are Released

(Concluded from Page 1, Column 3)

same warranty to Buyer that the manufacturer or supplier thereof furnishes to Seller. Seller shall not be liable for repairs or replacements made by Buyer without its written consent, nor for damages, delays and losses, consequential or otherwise, caused by defects, its liability being expressly limited to repair or replacement, as stated herein."

The warranty which Refrigerating Machinery Association members will use is as follows:

"Seller shall repair or replace, at its option, free of charge, f.o.b. the place of manufacture, any part of the within equipment manufactured by it that is claimed to be defective in workmanship or material, within one (1) year from date of shipment and, upon inspection, is proved to the satisfaction of Seller to have been defective at the time of shipment provided that Buyer promptly gives Seller notice and full information in writing about the defects and delivers the part f.o.b. Seller's factory for inspection, when requested.

"Equipment manufactured or supplied by others, but furnished by Seller under this order, carries the same warranty to Buyer that the manufacturer or supplier thereof furnishes to Seller. Seller shall not be liable for repairs or replacements made by Buyer without its written consent, nor for damages, delays and losses, consequential or otherwise, caused by defects, its liability being expressly limited to repair or replacement, as stated herein."

Cartoon-Type Drawings Used by Distributor

LOS ANGELES—Cartoon-type mailing pieces are used by Jacob Simons, proprietor of Refrigeration Distributors, Inc., 1543 West 7th St., commercial refrigeration dealers here, to establish an informal friendship between his salesman and the customer. On the plain letter-head size sheet of paper are mimeographed copy and a semi-comic drawing, which serves as an eye-catcher.

Emphasis is placed on the trade name of the refrigeration system, and on the list of establishments purchasing equipment during the week just past.

First mailing follows immediately after the salesman's first call, and brings a noticeable resistance breakdown, reports Mr. Simons. The mailing list is compiled from the prospect list so that each prospect receives a weekly sheet.

Refrigeration Used in Auto Coil Testing

TOLEDO—Electric Auto-Lite Co. here recently found a new use for electric refrigeration in testing a small coil used in the ignition system of automobiles.

These coils, fastened on a small metal block, come out of ovens at a temperature of 140° F., and must be reduced to zero and this temperature maintained for a period of 30 minutes during the test.

A special refrigerator, 40 in. wide, 32 in. deep, 7 ft. 6 in. high, and insulated with four inches of corkboard, was devised by F. I. Davison of the Toledo branch of the McCray Refrigerator Sales Corp. with the help of factory engineers.

1,325 Units Sold in First Week of 'Sales Circus'

ATLANTA—During the first week of the Sales Circus activity now being conducted by the Georgia Power Co. 1,325 units, or 16.6% of the 8,000 unit quota were sold.

Covered in this figure are 753 refrigerators, 294 ranges, 215 water heaters, and 62 commercial refrigeration and air-conditioning units.

The power company's Atlanta sales territory, with sales of 304 refrigerators, 97 ranges, 64 water heaters, and 23 commercial and air-conditioning installations, led the six divisions for the contest's opening week.

Quotas set for the drive are: refrigerators, 3,750; ranges, 2,250; water heaters, 1,100; and commercial refrigeration and air-conditioning installations, 900 units.

27,299 Commercial Condensing Units Sold by 15 Manufacturers during April, 1936 to Set New Monthly Record

The following report of commercial refrigerating and air-conditioning equipment sales for April, 1936, were made to the Commercial Refrigeration Section of the Refrigeration Division of the National Electrical Manufacturers Association (Nema) by the following 15 companies:

Brunner Manufacturing Co., Carrier Engineering Corp., Crosley Radio Corp., Frigidaire Corp., General Electric Co., Gibson Electric Refrigeration Corp., Kel-

vinator Corp., Leonard Refrigerator Co., Merchant & Evans Co., Norge Corp., Servel, Inc., Uniflow Manufacturing Co., Universal Cooler Corp., Westinghouse Electric & Manufacturing Co., and York Ice Machinery Corp.

	Domestic		SALES FOR APRIL, 1936		Other Foreign		Total World	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1. Bottle Water Coolers—Complete.....	645	\$ 44,746	1	\$ 95	9	\$ 856	655	\$ 45,697
2. Pressure Water Coolers—Complete.....	1,607	161,205	13	1,542	24	2,572	1,644	165,319
3. Water Coolers—Low Side Only.....	110	6,781	.....	.....	1	73	111	6,854
4. Ice Cream Cabinets—Complete.....	4,336	569,528	177	17,195	145	16,843	4,658	603,566
5. Ice Cream Holding Cab. Only (Remote)	1,153	155,958	33	3,994	45	5,454	1,231	165,406
6. Bottled Beverage Coolers—Complete....	4,609	339,469	213	14,697	98	6,443	4,920	360,809
7. Milk Cooling Cabinets (No High Sides)	132	9,498	.....	.....	221	11,922	353	21,420
8. Air Conditioners—Self-Contained.....	110	22,304	.....	.....	5	1,219	115	23,523
9. Air Conditioners—Floor Type (No High Sides).....	325	125,624	1	263	14	5,471	340	131,358
10. Air Conditioners—Ceiling (Cooling Only—No High Sides).....	278	41,662	.....	.....	21	2,618	299	44,280
11. Air Conditioners—Ceiling Type (Equipped for Heating—No High Sides)	62	35,877	1	833	.....	.....	63	36,710
12. Air Conditioners—Residential Type (No High Sides, Boilers, or Furnaces)....	4	2,400	.....	.....	2	600	5	3,000
13. Condensing Units—Less Than ½ Hp....	2,887	147,118	61	5,587	1,627	100,825	4,575	253,530
14. Condensing Units—½ Hp.....	2,952	225,803	39	2,969	599	45,196	3,590	273,968
15. Condensing Units—¾ Hp.....	1,965	182,597	62	6,754	275	24,619	2,303	213,970
16. Condensing Units—1 Hp.....	1,285	156,340	44	6,018	102	12,985	1,431	175,353
17. Condensing Units—1½ Hp.....	1,139	163,547	31	5,277	92	15,268	1,262	184,092
18. Condensing Units—2 Hp.....	801	155,011	13	2,650	84	17,761	898	175,422
19. Condensing Units—3 Hp.....	317	68,983	6	1,646	34	7,019	357	77,648
20. Condensing Units—4 Hp.....	243	64,977	4	1,090	91	16,303	338	82,370
21. Condensing Units—5 Hp.....	120	52,752	.....	.....	12	5,884	132	58,636
22. Condensing Units—7½ Hp.....	53	31,696	1	942	1	520	55	33,158
23. Condensing Units—10 Hp.....	128	86,444	.....	.....	17	12,169	145	98,613
24. Condensing Units—15 Hp.....	116	86,062	.....	.....	.....	.....	116	86,062
25. Condensing Units—20 Hp.....	63	68,678	.....	.....	.....	.....	63	68,678
26. Condensing Units—25 Hp.....	40	47,760	.....	.....	2	2,704	42	50,464
27. Total Lines 13 to 26 Inclusive.....	12,110	.....	261	.....	2,936	.....	15,307	.....
28. Total Lines 1, 2, 4, 6, 8, and 27.....	53,417	.....	665	.....	3,217	.....	27,299	.....
29. Commercial Evaporators (Not Reported Above).....	4,481	137,179	350	13,578	825	22,735	5,656	173,492
30. Air-Conditioning Evaporators (Not Reported Above).....	413	62,050	22	3,760	435	65,810
31. Total Commercial & Air Conditioning.....	\$3,252,049	\$85,130	\$349,029	\$3,679,208

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Type '3A' System (from Master Service Manual)

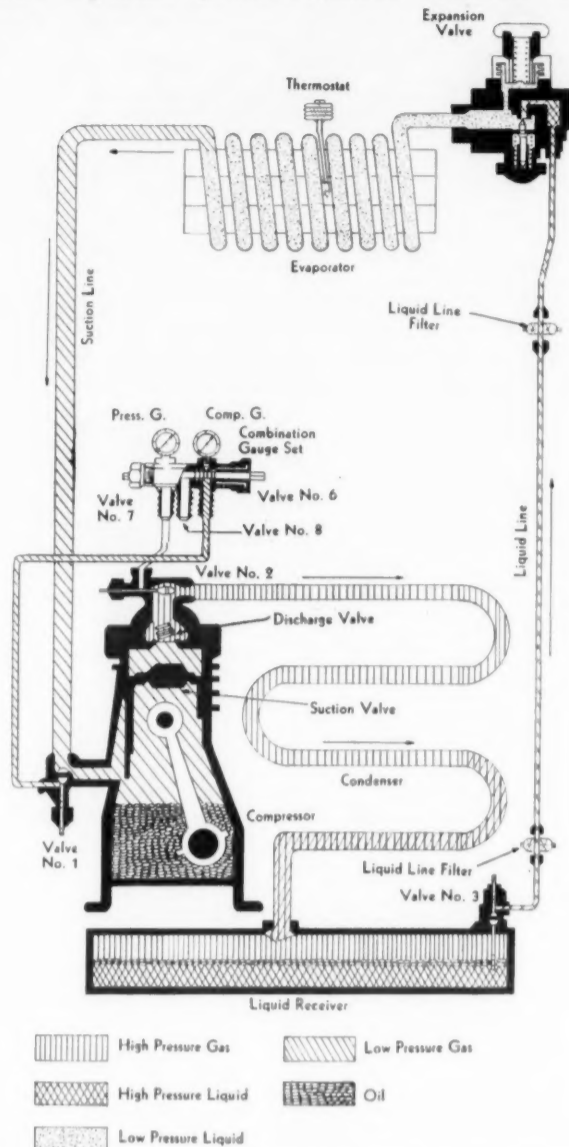


Fig. 4—Drawing of a type '3A' system as described in the Master Service Manual. Early Zerozone models were of this general type.

Lowside Float

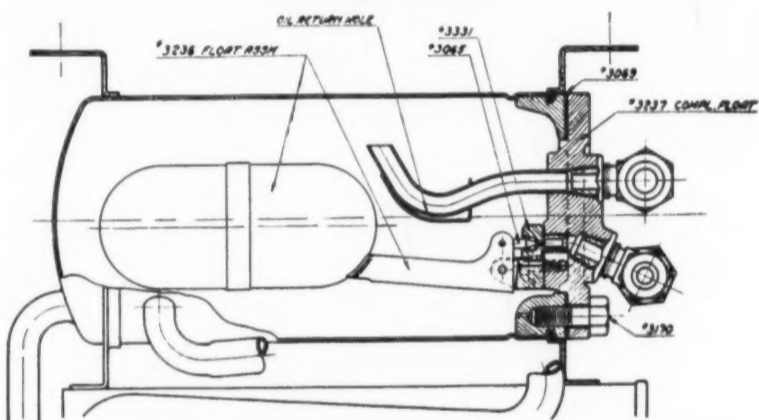


Fig. 5—Low side float of the type used in later Zerozone household refrigeration systems, up to 1933.

Zerozone Model 'A' Compressor

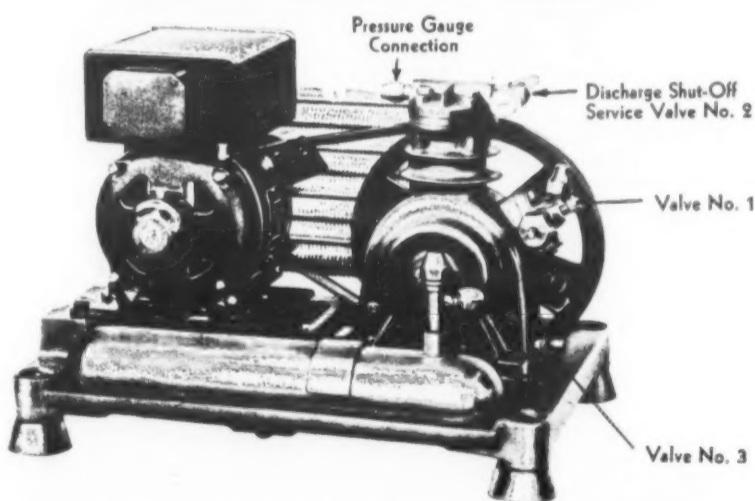


Fig. 8—Model 'A' Zerozone compressor which was different in design from other Zerozone models. The valves used for gauge connections, and for a refrigerant recharge, are designated on the illustration.

Data on Zerozone Units 1925-1933

(Concluded from Page 16, Column 3)
refrigerators up to 1933 employed the flooded type of evaporator, using the low side floats, as illustrated in Fig. 5, and equipped with the two standard evaporator shut-off service valves (valves Nos. 4 and 5, Fig. 6).

The first models of this group employed the Ranco R8 thermostatic control. On certain large models low pressure controls were used which later gave away to the thermostatic control (Ranco Type R8 or Type F, or Cutler-Hammer Type D).

In this group where the flooded evaporator is used, with the conventional condensing unit, and controlled by the thermostatic control, the system is of type '1C' classification described in the MASTER SERVICE MANUAL, and all service complaints and operations for this type of system are given in Chapter 9, pages 207-210, of the MANUAL.

Fig. 7 shows the Zerozone syphon seal.

The data in Table I covers the specifications on the Zerozone flooded evaporators.

Zerozone compressor specifications are given in Table II.

One of the Zerozone compressors, model A (Fig. 8), was not equipped with the standard discharge shut-off service valve which provides a gauge port for the pressure gauge connection.

It did use an angle valve, similar to a standard liquid receiver valve in one side of the compressor head to which the condenser line was connected. Opposite this valve and also in the head is a small 1/8 inch pipe plug.

To install the pressure gauge, it is first necessary to install the compound gauge. Close suction line shut-off service valve to the right (valve No. 1). Operate compressor to 0 lbs. on compound gauge. Stop compressor and close discharge shut-off service valve No. 2. Remove pipe plug from cylinder head. The sulphur dioxide gas contained in the head will be lost in the atmosphere.

With plug removed, install a small angle valve in the opening of the head. Attach the pressure gauge line to the angle valve.

It is recommended that this angle valve be left in the compressor for future service work. Its presence will

Piston Assembly

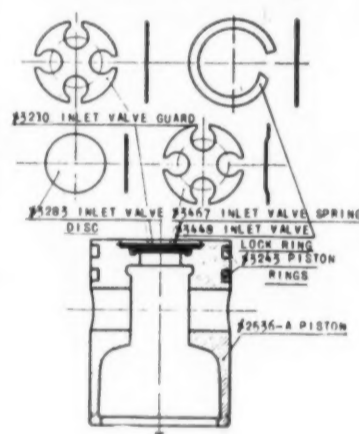


Fig. 9—Zerozone piston assembly, showing detail of inlet valve parts.

provide a convenient gauge connection for future service work without losing sulphur dioxide to the atmosphere.

Inasmuch as the discharge service shut-off valve is of the one-way type and is screwed in the head, it cannot be removed when replacing the compressor body, with pressure in the condenser.

To charge the body, operate compressor to 0 lbs. on compound gauge. Stop compressor. Close discharge shut-off service valve. Remove cap screws holding cylinder head in place. Remove cylinder head leaving valve attached to head and condenser line.

Unbolt and remove valve No. 1. Unbolt and remove and replace compressor body. Install valve No. 1 on new body and install present cylinder head on new body. Purge on through high pressure gauge valve, or through combination gauge set. Test for leaks. The Zerozone piston assembly is shown in Fig. 9.

The reed type discharge valve is shown in Fig. 10.

3 Ice Cream Trucks to Use Whitaker-Upp Drive

BUFFALO—Three ice cream delivery trucks, built by Meyer Body Co. here, and equipped with Century Whitaker-Upp power drives for mechanical refrigeration systems, were recently ordered by the Hershey Creamery Co. of Harrisburg, Pa. A marked increase in ice cream body business is reported.

Table 1—Data on Zerozone Flooded Evaporators

	F-5V	F-6V	F-8-V	F-10-V	F-15-V
Width	5 1/4	5 1/4	6 1/2	6 1/2	8 1/2
Depth	11 1/4	11 1/4	14 1/4	14 1/4	14 1/4
Height	10 1/4	12 1/4	13 1/4	15 1/4	15 1/4
SO ₂ charge (lbs.)	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4
Oil charge (pts.)	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
B.T.U.'s per hour	240	300	360	420	564
Number of ice trays	2	3	3	4	4
Total number of cubes	42	63	63	84	84
Pounds of ice cubes	4	6	7 1/2	10	10
Trays fronts	No	Yes	Yes	Yes	Yes

Table 2—Zerozone Compressor Specifications

Model	A	SC	TC	D
SO ₂ refrigerant charge (lbs.)	3	3	4	1
Oil charge (pts.)	5/6	1 1/4	1 1/4	5/6
Motor size (hp.)	1/6	1/4	1/3	1/6
Stroke (in.)	1 1/2	1 1/4	1 1/4	1
Bore (in.)	1 1/2	1 1/4	1 1/4	1
Number of cylinders	1	1	2	1
Compressor speed	430	375	380	1,725
I.M.E. per 24 hours	107	146	290	96
Motor drive	V-Belt	V-Belt	V-Belt	Direct

Type '1C' System (from Master Service Manual)

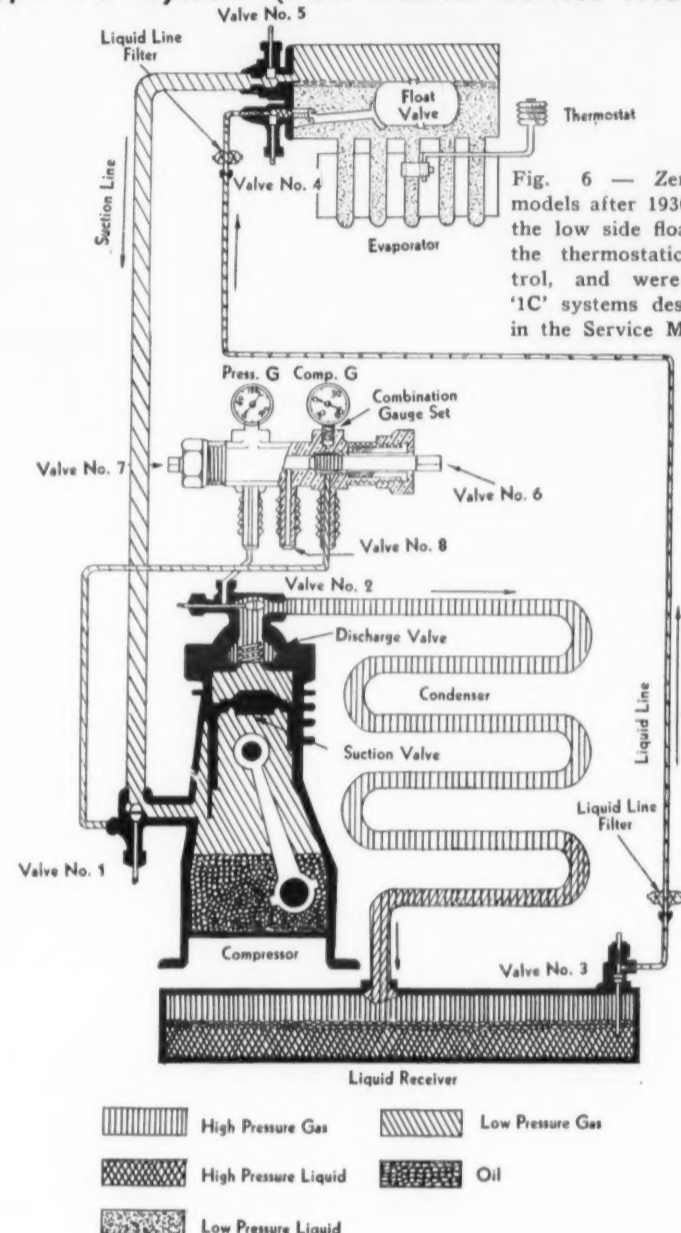


Fig. 6—Zerozone models after 1930 used the low side float and the thermostatic control, and were type '1C' systems described in the Service Manual.

Reed Type Discharge Valve

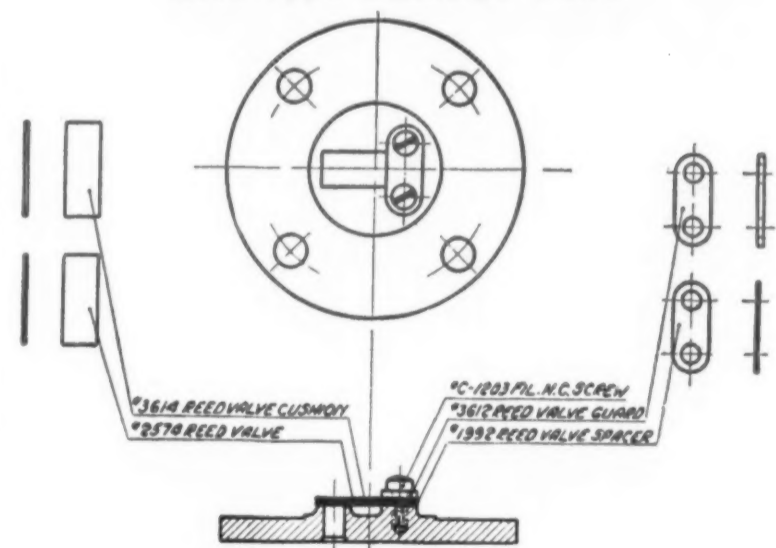
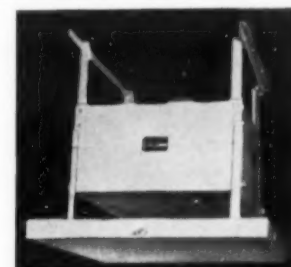


Fig. 10—Reed type discharge valve. This type was used in Zerozone household units.

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Methods of Arranging Coils in Ice Freezing Tanks

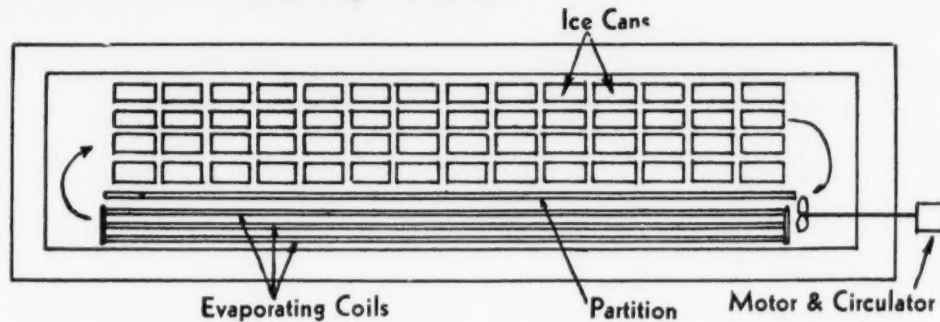
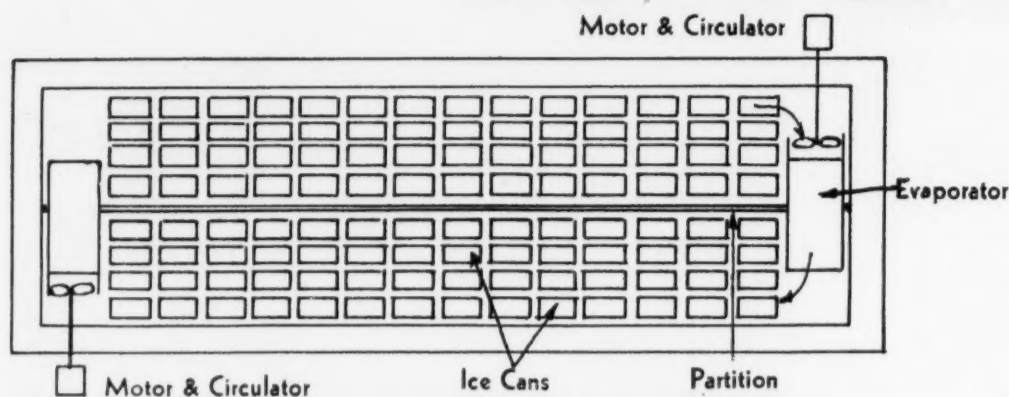


Fig. 87 (left)—Ice freezing tank with shell and tube brine cooler in both ends.
Fig. 88 (above)—Ice freezing tank with coil brine coolers on end.

The Refrigeration Engineer's Manual

By S. L. Potts

How to Determine Refrigeration Required for Ice Making

Chapter 11—Ice Plants (Concluded)

There are three kinds of water used in making ice, and may be used in either the plate or can system. These are known as:

1. Raw Water
2. Distilled Water
3. Treated Water

Raw water is the water in its natural state as it comes from the water supply lines, or from wells, springs, lakes, and rivers. Raw water from some of these sources may be impossible to use for making ice without difficulties of distillation or chemical treatment of some kind.

Distilled water is steam condensate. Ice made from condensate properly made, free from oil, and kept from contact with air produces the best ice.

Treated water usually treated with chemicals to remove some of the dissolved materials contained in raw water. Water properly treated makes very good ice. The methods of treatment are many and varied and will not be taken up here.

Refrigeration Requirements

One ton capacity. The amount of refrigeration that will be required to produce one ton of ice varies with change in operation conditions. One ton of refrigeration is a definite quantity of heat absorption but does

not equal one ton of ice frozen. Under average operating conditions, one ton refrigeration only produces from $\frac{1}{2}$ to $\frac{3}{4}$ ton of ice.

If the water used to make the ice was furnished at the ice cans at 32° F. and was frozen into ice at 32° F. without any losses whatever, then one ton of refrigeration would produce one ton of ice. This is never the case in actual operation. The water is placed in the ice cans from 60° to 100° F. Assume 70° F. The ice is frozen with a brine temperature at 15° F. to 18° F. which produces ice at about 25° F. Let us figure the amount of heat required to freeze one ton of water under these conditions.

To cool one pound of water from 70° F. to 32° F. will require that 70—32=38 B.t.u. per pound be absorbed. To freeze the water into ice will require the absorption of 144 B.t.u. more. To cool the ice from 32° F. to 25° F. will require the absorption of about 70° F. to one pound of ice at 25° F. without any losses taking place during the freezing time.

As the freezing period used for one ton of ice making is 24 hours and as the temperature for this time may be from 60° F. to 100° F. for summer weather, considerable heat will leak into the ice cans and ice, also into the cold brine in tank. This loss may be from 25 per cent to 50 per cent depending on the conditions in the freezing room. Allowing the loss to be 33 1/3 per cent of actual heat ab-

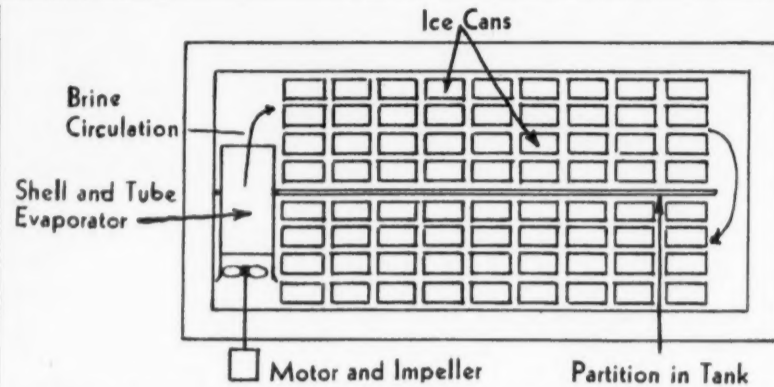


Fig. 86—Ice freezing tank with shell and tube brine cooler in one end.

Table 14—Size of Ice Cans and Freezing Time

Size of can in inches	Capacity ice in pounds	15° Brine	18° Brine
6 x 12 x 26	50 pounds ice	15 hours	20 hours
8 x 16 x 32	100 pounds ice	30 hours	36 hours
8 x 16 x 42	150 pounds ice	30 hours	36 hours
11 x 22 x 32	200 pounds ice	50 hours	60 hours
11 x 22 x 44	300 pounds ice	50 hours	60 hours
11 x 22 x 57	400 pounds ice	50 hours	60 hours
11 x 22 x 44 is standard size can.			

sorption required, therefore, 186 B.t.u. is 66% per cent of the heat absorbed and 100 per cent of the heat absorbed to make one pound of ice is

$$\frac{186}{66.66} \times 100 = 280.7 \text{ B.t.u.}$$

absorbed per pound and the percentage of ice made to refrigeration used is

$$\frac{144}{280.7} = .513 \text{ pounds of ice}$$

or one ton of refrigeration will produce .513 of a ton of ice of 2,000 lbs. $\times .513 = 1,026$ lbs. of ice. One ton of ice will require

$$\frac{280.7}{.513} = 1.95 \text{ tons of refrigeration}$$

Freezing tank size. The size of freezing tank will depend on the size of cans to be used, the number of cans allowed for one ton of ice, the time allowed for freezing, and the brine temperature used.

The tank should be made as small as possible so that the cost of brine to operate it will be small. The temperature of brine should be as low as possible to produce a marketable grade of ice in the shortest time possible. The type of evaporator must be decided upon, because changes must be made to suit evaporator. In general the size of freezing tank can be figured from the following. The number of cans allowed for the capacity required is,

$$N = \frac{W \times H}{w \times 24}$$

Assuming the cans to be the standard 300 lbs., and the time of freezing to be 60 hours, the cans required per ton of ice is:

$$N = \frac{2,000 \text{ lbs.} \times 60 \text{ hours}}{300 \times 24} = 15 \text{ or } 16 \text{ cans.}$$

This will range from 14 to 16 standard 300 lb. cans per ton of ice and the freezing time will vary from 48 to 72 hours.

N number of ice cans required for capacity of plant.

W weight of ice in pounds harvested per day of 24 hours of 2,000 lbs. \times capacity in tons of ice required.

H freezing time in hours.

w weight of ice in pounds per can. Freezing time required for can ice. The time required to freeze any size of can of ice will depend on the thickness of the ice and the temperature of brine used in freezing tank. The time required to freeze ice increases very rapidly as the thickness of ice increases. Practice has determined that 11 to 12 inch ice is very satisfactory. If the brine temperatures are lowered below 15° F. while the freezing time is reduced, and the product is not satisfactory and the waste is great. The rate at which the brine is circulated in the freezing tank has a bearing on the freezing time. As the rate of brine circulation is increased, the power required increases to such a cost that the shorter time of freezing is not economical. The brine velocities in freezing tanks will vary from 15 to 40 feet per minute.

The freezing time in hours can be found by

$$H = \frac{C \times \text{th}^2}{32 - T}$$

H the freezing time in hours.

th thickness of ice in inches taken at top of ice block.

T temperature of brine circulating in freezing tank.

C a constant derived from experiment with different brine velocities.

For brine velocity of

$$\begin{aligned} 40 \text{ ft. per min. } C &= 5.75 \\ 25 \text{ ft. per min. } C &= 6.50 \\ 10 \text{ ft. per min. } C &= 7.00 \end{aligned}$$

For velocities less than 10 ft. per min. C increases rapidly.

Brine Circulation

Brine required to be circulated per minute per ton of ice in 24 hours will depend on the rate the brine can be cooled, the temperature rise allowed in the brine in passing through the tank, and the total volume of brine in the tank.

In order to produce a uniform rate of freezing in all the ice cans in all parts of the freezing tank, the brine temperature must be as nearly uniform as possible. If the brine varies more than 2 or 3 degrees in any part of the tank, those cans in the warmest brine will require a longer period to freeze and will destroy the harvesting schedule. It is desirable to keep the brine temperature to about 1° F. rise in its circulation through the tank. To do this it becomes necessary to circulate a definite quantity of brine every minute.

The number of pounds of brine required to be circulated per minute for a given refrigerating effect will be

$$W = \frac{R \times R_m}{C_b \times (t_b - t_s)}$$

The value of the specific heat C_b must be taken from the table for the density of brine used in freezing tank.

The weight of brine in pounds can be figured in gallons by dividing by the number of lbs. of brine per gallon from Tables 12 and 13.

$$\text{Gallons} = \frac{W}{\text{Lbs. per gal.}}$$

The number of cubic feet of brine circulated per minute can be found by dividing the pounds by the weight of 1 cu. ft. from Tables 12 and 13.

$$\text{Cubic feet} = \frac{W}{\text{Lbs. per cu. ft.}}$$


The velocity of the brine circulating in freezing tank can be found by taking the total number of cubic feet of brine circulating per minute and dividing by the cross section area of tank in square feet, less the area of cans in the tank. This is the velocity that should be used in the formula for the constant "C" to determine time of freezing.

Type of Freezing Tank

Ice freezing tank types. The size of the tank will vary according to the ice making capacity, the size cans used, the time required for freezing the ice, the arrangement of the evaporating coils and methods used to circulate the brine in the tank.

Fig. 82 (May 27 issue) shows a frequent arrangement of cans and evaporator coils in the freezing tank. The coils are submerged in the brine. The cans are submerged in brine between evaporator coils. The heat passes easily from can to coil. Impellers are arranged to circulate the brine between the cans to give good conditions for heat transfer.

If no means is furnished for circulating the brine in this tank, the coldest brine will collect on bottom (Concluded on Page 19, Column 1)



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Three Views of One Type of Tank

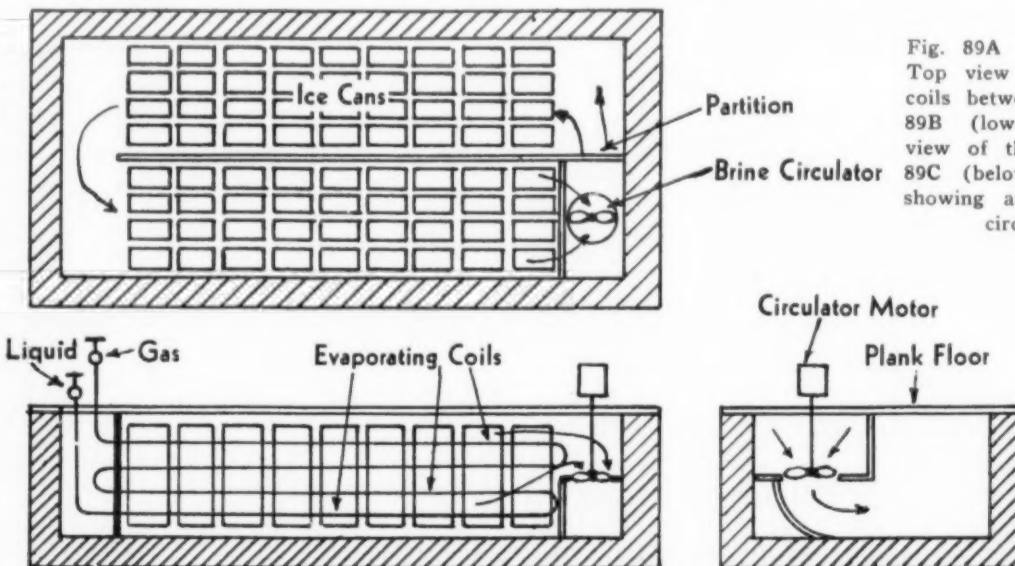


Fig. 89A (upper left)—Top view of tank with coils between cans. Fig. 89B (lower left)—Side view of this tank. Fig. 89C (below)—End view showing arrangement of circulator.

Table 15—Suction Pressure Required for Brine Temperature

Brine at	NE, at	Diff.	Suction Pressure Gauge
-5° F.	-17° F.	12° F.	5 lbs.
0° F.	-10° F.	10° F.	9 lbs.
+5° F.	-4° F.	9° F.	13 lbs.
+10° F.	+1° F.	9° F.	16 lbs.
+15° F.	+6° F.	9° F.	20 lbs.
+18° F.	+10° F.	8° F.	24 lbs.
+20° F.	+12° F.	8° F.	25 lbs.

Kind of Tanks Used For Ice Making

(Concluded from Page 18, Column 5) and the warmest on top. The ice can will freeze rapidly at first but will take a long time to complete the freezing at the top of the can. The circulation is very slow and only due to natural convection.

Fig. 86 shows a plan view of a freezing tank with an evaporator of the shell and tube type placed in the end of the tank (for evaporator see Fig. 61). A circulator is used to move the brine through the evaporator and tank.

If the tank is of considerable length, an evaporator may be placed at each end of tank. This will cut down the brine velocity and produce a more even temperature in the brine.

Fig. 87 shows a tank with an evaporator at each end.

Fig. 88 shows a tank with the evaporator coils placed on one side.

Fig. 89 shows a tank with vertical impellers arranged for motor drive. The motors are placed above the operating floor for better inspection and care.

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Enclosed you will please find one (\$1.00) dollar for which please forward two copies of the April 22 issue and two copies of the May 6 issue.

The publication is serving a wonderful purpose and contains valuable helps for salesmen in the field.

Also please enter my name to receive the catalog mailing service.—H. W. Smith, 417 No. McClay St., Santa Ana, Calif.

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Please add my name to your list of catalog mailing to independent service men.—Joseph Varel, Caryle, Ill.

York Markets Line of Steel Flanges for Pipe Welding

YORK, Pa.—Because the practice of welding refrigeration piping mains has become increasingly popular, especially for air-conditioning installations, York Ice Machinery Corp. has developed a line of steel welding flanges.

These new flanges are made entirely of forged steel. They are of the tongue and groove type, and have practically the same cross section as York standard screwed flanges.

The flanges have an extra long welding neck which is said to insure (1) plenty of room for the welding operator; (2) free flowing metal, insuring a perfect weld; (3) diffusion of heat, preventing warping of the flange; and (4) liberal clearance for tightening the tie-bolts. The flanges are made in the oval, square, and round types, in a range of pipe sizes from 3/4 to 10 inches.

The company has also designed pipe welding plugs for use as a fixture to hold flanges in line with the pipe during the welding operation. These are of solid copper alloy which readily diffuses the heat of the weld, and does not adhere to the molten steel.

Overton Is Sales Agent For Channon in Iowa

CHICAGO—H. Channon Co., refrigeration parts supply firm here, recently appointed G. R. Overton of Ottumwa, Iowa, as sales agent for the state of Iowa, reports Ralph E. Kramer, sales manager.

Mr. Overton has been in the refrigeration business for 15 years, and has been working closely with service engineers, contractors, and dealers in Iowa for some time, Mr. Kramer says.

The supply firm recently took over distribution of the Hercules line of high sides in addition to the Brunner line which it has been handling.

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